# STIC Search Report
## EIC 1700

STIC Database Tracking Number: 181675

| | |
|---|---|
| **TO: Kuo-Liang Peng**<br>**Location: REM 10A71**<br>**Art Unit : 1712**<br>**March 13, 2006**<br><br>**Case Serial Number: 10/747661** | **From: Kathleen Fuller**<br>**Location: EIC 1700**<br>**REMSEN 4B28**<br>**Phone: 571/272-2505**<br>**Kathleen.Fuller@uspto.gov** |

## Search Notes

# STIC Search Results Feedback Form

## EIC 1700

Questions about the scope or the results of the search? Contact *the EIC searcher or contact:*

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

## Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* ☐ *Example: 1713*
- *Relevant prior art found, search results used as follows:*
  - ☐ 102 rejection
  - ☐ 103 rejection
  - ☐ Cited as being of interest.
  - ☐ Helped examiner better understand the invention.
  - ☐ Helped examiner better understand the state of the art in their technology.

  *Types of relevant prior art found:*
  - ☐ Foreign Patent(s)
  - ☐ Non-Patent Literature (journal articles, conference proceedings, new product announcements etc.)

- *Relevant prior art **not found**:*
  - ☐ Results verified the lack of relevant prior art (helped determine patentability).
  - ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Access DB# 81675

# SEARCH REQUEST FORM

**Scientific and Technical Information Center**

Requester's Full Name: Kuo-Liang Peng Examiner #: 76860 Date: 3/7/06
Art Unit: 1712 Phone Number 30 2-1091 Serial Number: 10/742,661
Mail Box and Bldg/Room Location: REM/10A71 Results Format Preferred (circle): PAPER DISK E-MAIL

**If more than one search is submitted, please prioritize searches in order of need.**

**********

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____

_____

Earliest Priority Filing Date: _____

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please search Claims 1-9

**********

| STAFF USE ONLY | Type of Search | Vendors and cost where applicable |
|---|---|---|
| Searcher: Kathleen Fuller | NA Sequence (#) _____ | STN ✓ |
| Searcher Phone #: _____ | AA Sequence (#) _____ | Dialog _____ |
| Searcher Location: _____ | Structure (#) 4 | Questel/Orbit _____ |
| Date Searcher Picked Up: _____ | Bibliographic _____ | Dr.Link _____ |
| Date Completed: 3/13/06 | Litigation _____ | Lexis/Nexis _____ |
| Searcher Prep & Review Time: 40 | Fulltext _____ | Sequence Systems _____ |
| Clerical Prep Time: _____ | Patent Family _____ | WWW/Internet _____ |
| Online Time: 75 | Other _____ | Other (specify) _____ |

PTO-1590 (8-01)

=> => FILE REG
FILE 'REGISTRY' ENTERED AT 15:45:50 ON 13 MAR 2006
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DICTIONARY FILE UPDATES: 12 MAR 2006 HIGHEST RN 876514-29-3

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TSCA INFORMATION NOW CURRENT THROUGH January 6, 2006

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**********
*
* The CA roles and document type information have been removed from *
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* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
*
**********

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http://www.cas.org/ONLINE/UG/regprops.html

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FILE COVERS 1907 - 13 Mar 2006 VOL 144 ISS 12
FILE LAST UPDATED: 12 Mar 2006 (20060312/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

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=> D QUE
L2          12 SEA FILE=REGISTRY ABB=ON  (7440-57-5/BI OR 7803-49-8/BI OR
               15189-51-2/BI OR 16903-35-8/BI OR 16940-66-2/BI OR 176499-35-7/
               BI OR 302-04-5/BI OR 5470-11-1/BI OR 584-08-7/BI OR 68-04-2/BI
               OR 9002-88-4/BI OR 9003-07-0/BI)
L7      139734 SEA FILE=REGISTRY ABB=ON  2 46.156.30/RID
L8        1404 SEA FILE=REGISTRY ABB=ON  L7 AND SI/ELS
L11         22 SEA FILE=REGISTRY ABB=ON  L8 AND SALT
L12        177 SEA FILE=REGISTRY ABB=ON  L8 AND PYRIDINIUM
L13        186 SEA FILE=REGISTRY ABB=ON  (L11 OR L12)
L19       1275 SEA FILE=REGISTRY ABB=ON  2508.272.19/RID
L23       5891 SEA FILE=REGISTRY ABB=ON  2508.234.18/RID
L25          7 SEA FILE=REGISTRY ABB=ON  L19 AND SI/ELS
L26         13 SEA FILE=REGISTRY ABB=ON  L23 AND SI/ELS
L28       1660 SEA FILE=REGISTRY ABB=ON  151-56-4/CRN
L29         66 SEA FILE=REGISTRY ABB=ON  L28 AND SI/ELS
L31          3 SEA FILE=REGISTRY ABB=ON  L2 AND AU/ELS
L32     281212 SEA FILE=HCAPLUS ABB=ON   L31 OR AU OR GOLD
L33      12905 SEA FILE=HCAPLUS ABB=ON   L32(3A)LAYER?
L34        127 SEA FILE=HCAPLUS ABB=ON   L13
L35         15 SEA FILE=HCAPLUS ABB=ON   L25 OR L26
L36         77 SEA FILE=HCAPLUS ABB=ON   L29
L37          1 SEA FILE=HCAPLUS ABB=ON   L33 AND (L34 OR L35 OR L36)
L38         16 SEA FILE=HCAPLUS ABB=ON   BIOCHEM?/SC,SX AND (L34 OR L35 OR
               L36)
L39         12 SEA FILE=HCAPLUS ABB=ON   (AU OR GOLD) AND (L34 OR L35 OR L36)
L40         26 SEA FILE=HCAPLUS ABB=ON   (L37 OR L38 OR L39)
L41          1 SEA FILE=HCAPLUS ABB=ON   IMMOBIL?(3A)(BIOLOG? OR PHYSIOL?) AND
               (L34 OR L35 OR L36)
L42         26 SEA FILE=HCAPLUS ABB=ON   L40 OR L41
L43        889 SEA FILE=HCAPLUS ABB=ON   L8
L45         44 SEA FILE=HCAPLUS ABB=ON   L43 AND BIOCHEM?/SC,SX
L47          1 SEA FILE=HCAPLUS ABB=ON   L45 AND IMMOBIL?
L48          3 SEA FILE=HCAPLUS ABB=ON   L45 AND SUBSTRAT?
L49          3 SEA FILE=HCAPLUS ABB=ON   L45 AND (AU OR GOLD)
L51         30 SEA FILE=HCAPLUS ABB=ON   L42 OR (L47 OR L48 OR L49)

=> D L51 BIB ABS IND HITSTR 1-30

L51  ANSWER 1 OF 30  HCAPLUS  COPYRIGHT 2006 ACS on STN
AN   2004:1036490  HCAPLUS
DN   142:3011
TI   Substrate for immobilizing physiological material, and
     a method of preparing the same
IN   Lee, In-Ho; Seo, Kang-Il; Lee, Jin-Iee; Kim, Hun-Soo
PA   S. Korea
SO   U.S. Pat. Appl. Publ., 17 pp.
     CODEN: USXXCO
DT   Patent
LA   English
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.          DATE
     --------------      ----   --------    --------------------     --------
PI   US 2004241462       A1     20041202    US 2003-747661           20031229
     GB 2402402          A1     20041208    GB 2003-29515            20031219
     DE 102004003595     A1     20041223    DE 2004-102004003595     20040115
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JP 2004361387 A2 20041224 JP 2004-42458 20040219
PRAI KR 2003-35427 A 20030602
AB Disclosed is a substrate construction for **immobilizing** a **physiol.** material that has a substrate; an organic polymer linker material layer formed on the substrate; and a **gold** thin **layer** formed on the organic polymer linker material layer. The organic polymer linker material layer has a thickness ranging form 30 to 200 nm and shows peaks of 111 and 200 planes using x-ray diffractometry when the X-rays radiate at an incident angle of 1.5. The substrate is prepared through the processes of forming an organic polymer linker material layer by coating a coating composition including organic polymer linker material on a substrate; forming a seed colloid catalytic **layer** by coating a **gold** colloid dispersion on the organic polymer linker material layer; drying or heat-treating the substrate on which the seed colloid catalytic layer is formed; and obtaining a **gold** thin **layer** by coating a coating composition that includes a **gold** salt-containing aqueous solution and a reducing agent-containing solution The polymer linker is especially trimethoxysilylpropylpolyethyleneimine.
IC ICM B32B015-08
ICS B05D001-38
INCL 428447000; 428448000; 428450000; 427402000; 427425000; 427430100; 427443100
CC **9-1** (**Biochemical** Methods)
ST polymer linker **gold** substrate **immobilization** **physiol** material; trimethoxysilylpropylpolyethyleneimine linker substrate **gold**
IT Functional groups
(alkoxy groups, on polymer linker; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)
IT Coating process
(dip; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)
IT Colloids
(**gold**, in seed catalytic **layer**; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)
IT Functional groups
(imino group, on polymer linker; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)
IT **Biological** materials
(**immobilization** of; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)
IT Animal cell
Microorganism
Neuron
Organ, animal
Plant cell
(immobilized on biochip; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing** **physiol.** material, and its preparation)
IT RNA
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); DEV (Device component use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(immobilized on biochip; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing**

**physiol.** material, and its preparation)

IT DNA
Enzymes, **biological** studies
Proteins
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified); DEV (Device component use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**immobilized**, on biochip; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT Drying
Heat treatment
(in forming **gold** thin **layer**; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT Self-assembly
(in forming polymer linker layer; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT Polymers, analysis
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
(linker **layer** between substrate and **gold** thin **layer**; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT Functional groups
(on polymer linker for reacting with substrate at one end and with **gold** at other end; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT Formyl group
(on polymer linker; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT Halogens
RL: RCT (Reactant); RACT (Reactant or reagent)
(on polymer linker; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT Biochips
(**physiol.** material **immobilized** on substrate for; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT Coating process
(plating; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT Coating process
(spin; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT Coating process
(spray; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT Glass substrates
Immobilization, molecular or cellular
Langmuir-Blodgett films

Printing (nonimpact)
Solvents
Stabilizing agents
(substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT Polycarbonates, uses
Polyesters, uses
RL: DEV (Device component use); USES (Uses)
(substrate; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT Reducing agents
(treatment with aqueous solution containing **gold** salt and, for forming **gold** thin **layer**; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT Tannins
RL: NUU (Other use, unclassified); USES (Uses)
(treatment with aqueous solution containing **gold** salt and, for forming **gold** thin **layer**; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT **176499-35-7**
RL: RCT (Reactant); RACT (Reactant or reagent)
(as polymer linker; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT 5470-11-1
RL: NUU (Other use, unclassified); USES (Uses)
(substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT 9002-88-4, Polyethylene 9003-07-0, Polypropylene
RL: DEV (Device component use); USES (Uses)
(substrate; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT **7440-57-5, Gold**, reactions
RL: DEV (Device component use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(thin **layer** on polymer linker layer; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT 68-04-2, Trisodium citrate 302-04-5, Thiocyanate, uses 584-08-7, Potassium carbonate 7803-49-8, Hydroxyamine, uses 7803-49-8D, Hydroxyamine, salts 16940-66-2
RL: NUU (Other use, unclassified); USES (Uses)
(treatment with aqueous solution containing **gold** salt and, for forming **gold** thin **layer**; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

IT 7440-57-5D, **Gold**, salts 15189-51-2 16903-35-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(treatment with aqueous solution containing reducing agent and, for forming **gold** thin **layer**; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing physiol.** material, and its preparation)

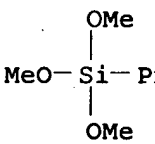
IT **176499-35-7**
RL: RCT (Reactant); RACT (Reactant or reagent)

(as polymer linker; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing** **physiol.** material, and its preparation)

RN 176499-35-7 HCAPLUS
CN Aziridine, polymer with trimethoxypropylsilane (9CI) (CA INDEX NAME)

CM 1

CRN 1067-25-0
CMF C6 H16 O3 Si



CM 2

CRN 151-56-4
CMF C2 H5 N

IT **7440-57-5**, **Gold**, reactions
RL: DEV (Device component use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(thin **layer** on polymer linker layer; substrate with polymer linker **layer** and **gold** thin **layer** for **immobilizing** **physiol.** material, and its preparation)
RN 7440-57-5 HCAPLUS
CN Gold (8CI, 9CI) (CA INDEX NAME)



L51 ANSWER 2 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:995697 HCAPLUS
DN 140:177229
TI Synthesis of a Non-Heme Template for Attaching Four Peptides: An Approach to Artificial Iron(II)-Containing Peroxidases
AU van den Heuvel, Marco; van den Berg, Tieme A.; Kellogg, Richard M.; Choma, Christin T.; Feringa, Ben L.
CS Department of Organic and Molecular Inorganic Chemistry, University of Groningen, Groningen, 9747, Neth.
SO Journal of Organic Chemistry (2004), 69(2), 250-262
CODEN: JOCEAH; ISSN: 0022-3263
PB American Chemical Society
DT Journal
LA English
OS CASREACT 140:177229

AB The authors are developing all-synthetic model cofactor-protein complexes to define the parameters controlling non-natural cofactor activity. The long-term objective is to establish the theor. and practical basis for designing novel enzymes. A non-heme pentadentate ligand (N4Py) is being developed as a template for the site-specific attachment of a designed four-helix bundle. Previously, the authors attached two unprotected peptides via CH2Cl handles to N4Py. In the presence of hydrogen peroxide, the iron(II) complex of this ligand (2a) generates an FeIIIOOH intermediate (3a) that can oxidize a wide variety of organic compds. Here, the authors describe the synthesis of 27, a N4Py derivative in which four three-carbon spacers have been introduced, and show that four copies of an unprotected, single-cysteine peptide can be coupled via a thioether linkage to the ligand. In addition, a divergent synthesis route to tetrabromide ligand 1b has also been developed, providing the opportunity to prepare alternative pentadentate ligands efficiently by four cross-coupling reactions on a single mol. Also, two of the four bromides of 1b can be selectively addressed by magnesium-bromide exchange.

CC **7-4** (Enzymes)
Section cross-reference(s): 28, 34, 78

ST iron pentadentate N4Py complex linked peptide prepn model peroxidase

IT Oxidation
Protein engineering
(convergent and divergent prepns. of nonheme pentadentate ligand N4Py tetrafunctionalized derivs. and peroxidase four-helix bundle model oxidation activity of iron-containing N4Py and peptide-linked forms)

IT Peptides, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(convergent and divergent prepns. of nonheme pentadentate ligand N4Py tetrafunctionalized derivs. and peroxidase four-helix bundle model oxidation activity of iron-containing N4Py and peptide-linked forms)

IT α-Helix
(four-α-helical; convergent and divergent prepns. of nonheme pentadentate ligand N4Py tetrafunctionalized derivs. and peroxidase four-helix bundle model oxidation activity of iron-containing N4Py and peptide-linked forms)

IT Crystal structure
(of iron-pentadentate N4Py tetrabromo and tetramethoxymethyl derivative complexes)

IT 9003-99-0, Peroxidase
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(convergent and divergent prepns. of nonheme pentadentate ligand N4Py tetrafunctionalized derivs. and peroxidase four-helix bundle model oxidation activity of iron-containing N4Py and peptide-linked forms)

IT 657397-60-9P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(convergent and divergent prepns. of nonheme pentadentate ligand N4Py tetrafunctionalized derivs. and peroxidase four-helix bundle model oxidation activity of iron-containing N4Py and peptide-linked forms)

IT 657397-63-2P 657397-65-4P 657397-67-6P 657397-69-8P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(convergent and divergent prepns. of nonheme pentadentate ligand N4Py tetrafunctionalized derivs. and peroxidase four-helix bundle model oxidation activity of iron-containing N4Py and peptide-linked forms)

IT 624-28-2, 2,5-Dibromopyridine 3430-13-5, 5-Bromo-2-picoline
656827-68-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(convergent and divergent prepns. of nonheme pentadentate ligand N4Py tetrafunctionalized derivs. and peroxidase four-helix bundle model oxidation activity of iron-containing N4Py and peptide-linked forms)

IT 31181-64-3P, 5-Bromo-2-picoline N-oxide 88139-91-7P, (5-Bromo-2-pyridinyl)methanol 122306-01-8P 145733-53-5P 149806-06-4P 168823-76-5P, 5-Bromo-2-(chloromethyl)pyridine 212914-72-2P 432554-59-1P 656827-74-6P 656827-76-8P 656827-78-0P 656827-81-5P 656827-84-8P 656827-85-9P 656827-87-1P **656827-88-2P** **656827-90-6P** **656827-92-8P** **656827-93-9P** **656827-94-0P** **656827-95-1P** 656827-96-2P 656827-97-3P 656827-98-4P 656827-99-5P 656828-00-1P 656828-01-2P 656828-02-3P 656828-04-5P 656828-05-6P 656828-06-7P 656828-07-8P 657401-92-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(convergent and divergent prepns. of nonheme pentadentate ligand N4Py tetrafunctionalized derivs. and peroxidase four-helix bundle model oxidation activity of iron-containing N4Py and peptide-linked forms)

IT 656828-03-4P 657397-62-1P
RL: SPN (Synthetic preparation); PREP (Preparation)
(convergent and divergent prepns. of nonheme pentadentate ligand N4Py tetrafunctionalized derivs. and peroxidase four-helix bundle model oxidation activity of iron-containing N4Py and peptide-linked forms)

IT 657397-56-3P 657397-58-5P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(crystal structure; convergent and divergent prepns. of nonheme pentadentate ligand N4Py tetrafunctionalized derivs. and peroxidase four-helix bundle model oxidation activity of iron-containing N4Py and peptide-linked forms)

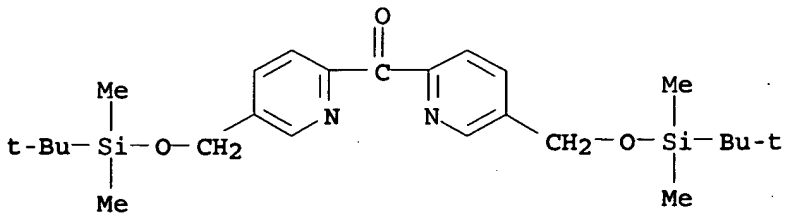
IT 657397-53-0P
RL: BSU (Biological study, unclassified); CAT (Catalyst use); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); USES (Uses)
(iron-containing N4Py peptide-linked form; convergent and divergent prepns. of nonheme pentadentate ligand N4Py tetrafunctionalized derivs. and peroxidase four-helix bundle model oxidation activity of iron-containing N4Py and peptide-linked forms)

IT 167695-89-8
RL: BSU (Biological study, unclassified); CAT (Catalyst use); PRP (Properties); RCT (Reactant); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
(iron-containing N4Py; convergent and divergent prepns. of nonheme pentadentate ligand N4Py tetrafunctionalized derivs. and peroxidase four-helix bundle model oxidation activity of iron-containing N4Py and peptide-linked forms)

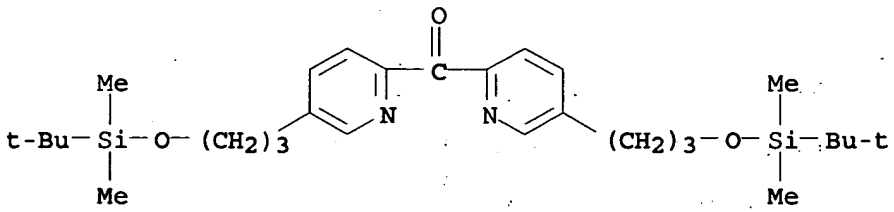
IT 28752-68-3, ABTS
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidation **substrate**; convergent and divergent prepns. of nonheme pentadentate ligand N4Py tetrafunctionalized derivs. and peroxidase four-helix bundle model oxidation activity of iron-containing N4Py and peptide-linked forms)

IT **656827-88-2P** **656827-90-6P** **656827-92-8P** **656827-93-9P** **656827-94-0P** **656827-95-1P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(convergent and divergent prepns. of nonheme pentadentate ligand N4Py tetrafunctionalized derivs. and peroxidase four-helix bundle model oxidation activity of iron-containing N4Py and peptide-linked forms)

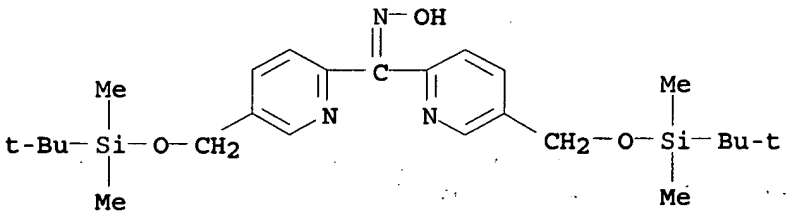
RN 656827-88-2 HCAPLUS
CN Methanone, bis[5-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]methyl]-2-pyridinyl]- (9CI) (CA INDEX NAME)



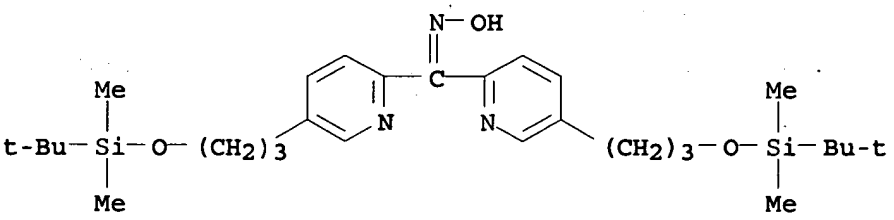
RN 656827-90-6 HCAPLUS
CN Methanone, bis[5-[3-[[(1,1-dimethylethyl)dimethylsilyl]oxy]propyl]-2-pyridinyl]- (9CI) (CA INDEX NAME)



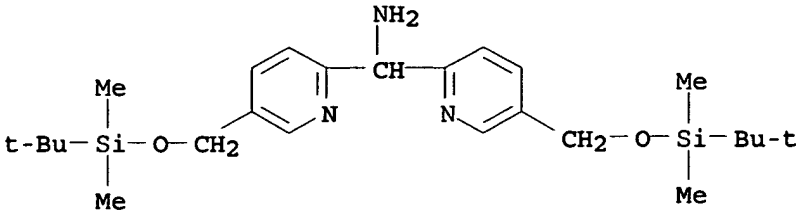
RN 656827-92-8 HCAPLUS
CN Methanone, bis[5-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]methyl]-2-pyridinyl]-, oxime (9CI) (CA INDEX NAME)



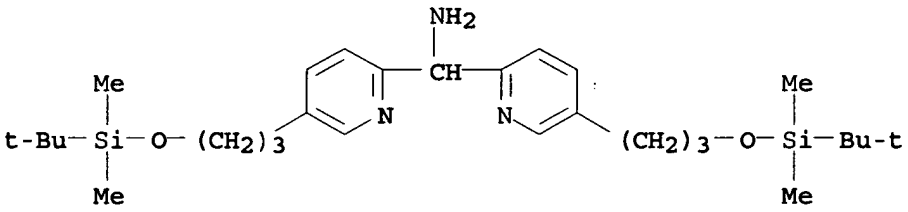
RN 656827-93-9 HCAPLUS
CN Methanone, bis[5-[3-[[(1,1-dimethylethyl)dimethylsilyl]oxy]propyl]-2-pyridinyl]-, oxime (9CI) (CA INDEX NAME)



RN 656827-94-0 HCAPLUS
CN 2-Pyridinemethanamine, 5-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]methyl]-α-[5-[[[(1,1-dimethylethyl)dimethylsilyl]oxy]methyl]-2-pyridinyl]- (9CI) (CA INDEX NAME)



RN 656827-95-1 HCAPLUS
CN 2-Pyridinemethanamine, 5-[3-[[(1,1-dimethylethyl)dimethylsilyl]oxy]propyl]-α-[5-[3-[[(1,1-dimethylethyl)dimethylsilyl]oxy]propyl]-2-pyridinyl]- (9CI) (CA INDEX NAME)



RE.CNT 75 THERE ARE 75 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 3 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:23106 HCAPLUS
DN 138:83329
TI Use of metal ion chelates in validating biological molecules as drug targets in test animal models
IN Rist, Oystein; Hogberg, Thomas; Holst Lange, Birgitte; Schwartz, Thue W.; Elling, Christian E.
PA 7TM Pharma A/S, Den.
SO PCT Int. Appl., 247 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 2

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | WO 2003003009 | A1 | 20030109 | WO 2002-DK456 | 20020628 |
| | W: AE, AG, AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EE, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LV, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG | | | | |
| | RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| | WO 2002054077 | A2 | 20020711 | WO 2001-DK867 | 20011221 |
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MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI DK 2001-1026 A 20010629
DK 2001-1027 A 20010629
DK 2001-1028 A 20010629
DK 2001-1030 A 20010629
DK 2001-1031 A 20010629
US 2001-301931P P 20010629
WO 2001-DK867 A 20011221
WO 2000-EP13389 W 20001229
DK 2001-536 A 20010330
US 2001-280237P P 20010330

OS MARPAT 138:83329

AB The invention discloses the use of chemical compds. or selections of chemical compds. (libraries) of the general Formula R1XFY(R1)GZR1 [F, G = N, O, S, Se, P; X, Y, Z = (un)branched C1-12 alkyl, aryl, heteroaryl, etc.; R1 = ABC; A = coupling or connecting moiety; B = spacer moiety; C = functional group] for in vivo methods for testing or validating the physiol. importance and/or the therapeutic or pharmacol. potential of biol. target mols., notably proteins such as, e.g., receptors and especially 7TM receptors in test animals expressing the biol. target mol. with, notably, a silent, engineered metal ion site. Use of specific metal ion binding sites of a generic nature in specific biol. target mols. such as, e.g. transmembrane proteins wherein the metal ion binding site is capable of forming a complex with a metal ion is also described. Also disclosed are chemical compds. or libraries suitable for use in methods for improving the in vivo pharmacokinetic behavior of metal ion chelates (e.g. the absorption pattern, the plasma half-life, the distribution, the metabolism and/or the elimination of the metal ion chelates). In order to improve the efficacy of the impact of the metal ion chelate on the biol. target mol. after administration of the metal ion chelate in vivo to a test animal, it is advantageous e.g. to increase the period during which the metal ion chelate is in the circulatory system and/or localized at the target. Further disclosed are metal ion-chelating compds. designed to be suitable for use in a target validation process according to the invention, as well as libraries of at least two or more of such metal ion-chelating compds.

IC ICM G01N033-50

CC 1-1 (Pharmacology)
Section cross-reference(s): 27

ST metal chelate drug screening target validation; protein target drug screening metal chelate; receptor target drug screening metal chelate; pharmacokinetics metal chelate drug screening

IT Galanin receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(1; metal ion chelates in validating biol. mols. as drug targets in test animal models)

IT Chemokine receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(CXCR4; metal ion chelates in validating biol. mols. as drug targets in test animal models)

IT Receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(RASSL; metal ion chelates in validating biol. mols. as drug targets in test animal models)

IT Transport proteins
RL: BSU (Biological study, unclassified); BIOL (Biological study)

(dopamine transporter; metal ion chelates in validating biol. mols. as drug targets in test animal models)
IT Leukotriene receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(leukotriene B4; metal ion chelates in validating biol. mols. as drug targets in test animal models)
IT Chelating agents
Drug screening
Drug targets
Molecular modeling
Mutagenesis
Structure-activity relationship
(metal ion chelates in validating biol. mols. as drug targets in test animal models)
IT Proteins
Receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(metal ion chelates in validating biol. mols. as drug targets in test animal models)
IT Chelates
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(metal ion chelates in validating biol. mols. as drug targets in test animal models)
IT Conformation
(protein; metal ion chelates in validating biol. mols. as drug targets in test animal models)
IT Protein motifs
(transmembrane domain; metal ion chelates in validating biol. mols. as drug targets in test animal models)
IT Proteins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(transmembrane; metal ion chelates in validating biol. mols. as drug targets in test animal models)
IT Tachykinin receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(type NK1; metal ion chelates in validating biol. mols. as drug targets in test animal models)
IT Opioid receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(κ-opioid; metal ion chelates in validating biol. mols. as drug targets in test animal models)
IT Adrenoceptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(β2; metal ion chelates in validating biol. mols. as drug targets in test animal models)
IT 52-90-4, L-Cysteine, biological studies 56-45-1, L-Serine, biological studies 56-84-8, L-Aspartic acid, biological studies 56-85-9, L-Glutamine, biological studies 56-86-0, L-Glutamic acid, biological studies 56-87-1, L-Lysine, biological studies 60-18-4, L-Tyrosine, biological studies 63-68-3, L-Methionine, biological studies 66-71-7D, 1,10-Phenanthroline, derivs., zinc and coppper complexes 70-47-3, L-Asparagine, biological studies 71-00-1, L-Histidine, biological studies 72-19-5, L-Threonine, biological studies 73-22-3, L-Tryptophan, biological studies 74-79-3, L-Arginine, biological studies 366-18-7, 2,2'-Bipyridine 7646-85-7, Zinc chloride, biological studies 16571-18-9 17168-72-8 20243-47-4 28293-61-0 65312-43-8, Blood coagulation factor VIIa 105942-31-2D, copper complexes 139238-43-0 157378-06-8 482579-58-8
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(metal ion chelates in validating biol. mols. as drug targets in test

animal models)

IT 90-02-8, biological studies 94-67-7 148-24-3, 8-Quinolinol, biological studies 304-88-1 491-33-8, 8-Quinolinethiol 492-97-7, 2,2'-Bithiophene 495-18-1 496-74-2 607-28-3 694-83-7, 1,2-Cyclohexanediamine 779-84-0 873-69-8 886-08-8 1134-35-6 1137-68-4 1245-13-2 1262-69-7 1662-01-7 1748-89-6, [2,2'-Bipyridine]-4-carboxylic acid 1762-34-1 1772-01-6 1970-80-5, [2,2'-Bipyridine]-5-carboxylic acid 2706-56-1, 2-Pyridineethanamine 3002-78-6 3002-81-1 3117-65-5 3248-05-3 3265-24-5 3291-00-7 3731-51-9, 2-Pyridinemethanamine 4199-88-6 4199-89-7 4411-80-7 4433-01-6, [2,2'-Bipyridine]-3,3'-dicarboxylic acid 4733-39-5 5961-35-3 5961-36-4 6153-89-5 6153-92-0 7089-68-1 7275-43-6 7471-05-8 14162-90-4, [2,2'-Bipyridine]-4-carboxamide 15439-16-4, 1,4,8,12-Tetraazacyclopentadecane 19437-26-4 19535-47-8, Dipyrido[3,2-a:2',3'-c]phenazine 21911-90-0 23978-55-4 25700-14-5 27318-90-7, 1,10-Phenanthroline-5,6-dione 31301-28-7 32382-63-1 33893-89-9 40386-51-4 50890-67-0 54258-41-2, 1,10-Phenanthrolin-5-amine 56100-24-4 57709-61-2 62027-35-4 69006-93-5, 1H-Benzimidazole-2-carboximidamide 72914-19-3 75449-26-2, [2,2'-Bipyridine]-3,3'-diamine 77692-11-6 78831-41-1 89972-77-0 93844-96-3 94268-48-1 96897-04-0 99112-52-4 99970-84-0, [2,2'-Bipyridine]-4,4'-dicarboxaldehyde 105166-53-8, [2,2'-Bipyridin]-3-amine 107976-78-3 114527-27-4 115021-71-1 118724-25-7 123865-76-9 128143-89-5 146581-82-0, [2,2'-Bipyridine]-4-carboxaldehyde 146581-87-5, [2,2'-Bipyridine]-5-methanol 149762-81-2 149969-30-2 160539-04-8, [2,2'-Bipyridin]-5-amine 199282-55-8 199282-56-9 219557-28-5 219557-36-5 220339-96-8, [2,2'-Bipyridine]-5-methanamine 220340-37-4, [2,2'-Bipyridine]-4-methanol 220340-46-5, [2,2'-Bipyridine]-3-carboxylic acid 294648-47-8, [2,2'-Bipyridine]-5-carboxamide 302912-20-5 312603-96-6 313550-33-3 318512-23-1 482322-56-5 482322-59-8 482322-61-2 482322-63-4 482322-66-7 482322-77-0 482322-82-7 482322-84-9 482322-90-7 482322-95-2 482322-99-6 482323-01-3 482323-14-8 482323-17-1 482323-18-2 482323-19-3 482323-20-6 482323-22-8 482323-23-9 482323-24-0, [2,2'-Bipyridine]-3-propanamine 482323-25-1 482323-26-2 482323-27-3 482323-28-4 482323-30-8 482323-31-9 482323-32-0 482323-33-1 482323-34-2 482323-35-3 482323-36-4 482323-37-5, [2,2'-Bipyridine]-3-ethanamine 482323-38-6 482323-39-7 482323-40-0 482323-41-1 482323-42-2 482323-43-3 482323-44-4 482323-45-5 482323-46-6 482323-47-7 482323-48-8 482323-49-9 482323-50-2 482323-51-3 482323-52-4 482323-53-5 482323-54-6 482323-55-7 482323-56-8 482323-57-9 482323-58-0 482323-59-1 482323-60-4 482323-61-5 482323-62-6 482323-63-7 482323-64-8 482323-65-9 482323-66-0 482323-67-1 482323-68-2 482323-69-3 482323-70-6 482323-71-7 482323-72-8 482323-73-9 482323-74-0 482323-75-1 482323-76-2 482323-77-3 482323-78-4 482323-79-5 482323-80-8 482323-81-9 482323-82-0 482323-83-1 482323-84-2 482323-85-3 482323-86-4 482323-87-5 482323-88-6 482323-89-7 482323-90-0 482323-91-1 482323-92-2 482323-93-3 482323-94-4 482323-95-5 482323-96-6 482323-97-7 482323-98-8 482323-99-9 482324-00-5 482324-01-6 482324-02-7 482324-03-8 482324-04-9 482324-05-0 482324-06-1 482324-07-2 482324-08-3 482324-09-4 482324-10-7 482324-11-8 482324-12-9 482324-13-0 482324-14-1 482324-15-2 482324-16-3 482324-17-4 482324-18-5 482324-19-6 482324-20-9 482324-21-0 482324-22-1 482324-23-2 482324-24-3 482324-25-4 482324-26-5 482324-27-6 482324-28-7 482324-29-8 482324-30-1 482324-31-2 482324-32-3 482324-33-4 482324-34-5 482324-35-6 482324-36-7 482324-37-8 482324-38-9 482324-39-0 482324-40-3 482324-41-4 482324-42-5 482324-43-6 482324-44-7 482324-45-8 482324-46-9 482324-47-0

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(metal ion chelates in validating biol. mols. as drug targets in test animal models)

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482324-95-8 482324-96-9 482324-97-0 482324-98-1,
[2,2'-Bipyridine]-4-methanamine 482324-99-2 482325-00-8 482325-01-9
482325-02-0 482325-04-2 482325-05-3 482325-06-4 482325-07-5
482325-08-6, [2,2'-Bipyridine]-3-carboxamide 482325-09-7,
[2,2'-Bipyridine]-3-methanol 482325-10-0 482325-11-1 482325-12-2
482325-13-3 482325-14-4 482325-15-5 482325-16-6 482325-17-7
482325-18-8 482325-19-9 482325-20-2 482325-21-3 482325-22-4
482325-23-5 482325-24-6 482325-25-7 482325-26-8 482325-27-9
482325-28-0 482325-29-1 482325-30-4 482325-31-5 482325-32-6
482325-33-7 482325-34-8 482325-35-9 482325-36-0 482325-37-1
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RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(metal ion chelates in validating biol. mols. as drug targets in test animal models)

IT 60-00-4, EDTA, properties 29528-30-1
RL: PRP (Properties)
(metal ion chelates in validating biol. mols. as drug targets in test animal models)

IT 75-66-1, 2-Methyl-2-propanethiol 95-54-5, 1,2-Phenylenediamine, reactions 98-59-9, Tosyl chloride 98-98-6, Picolinic acid 100-70-9, 2-Cyanopyridine 105-36-2, Ethyl 2-bromoacetate 107-15-3, 1,2-Ethylenediamine, reactions 108-24-7, Acetic anhydride 108-31-6, Maleic anhydride, reactions 109-04-6, 2-Bromopyridine 122-80-5 124-63-0, Methanesulfonyl chloride 693-11-8 1003-10-7 1121-60-4, 2-Pyridinecarboxaldehyde 1826-67-1, Vinyl magnesium bromide 1993-03-9, 2-Fluorophenylboronic acid 2127-03-9 2417-90-5, 3-Bromopropionitrile 4572-03-6 5470-11-1, Hydroxylamine hydrochloride 13207-66-4, 5-Amino-8-hydroxyquinoline 14508-49-7, 2-Chloropyrazine 14805-00-6, 5-Nitro-2,2'-bipyridine 21302-43-2, 5-Amino-8-hydroxyquinoline dihydrochloride 21947-98-8 40134-18-7, 2-Chloronicotinic acid methyl

ester 51628-12-7 57260-71-6 59020-10-9 104704-09-8 114549-79-0
115309-57-4 162318-34-5 482322-76-9 483966-08-1 483966-11-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(metal ion chelates in validating biol. mols. as drug targets in test animal models)

IT 482322-73-6P 482322-79-2P 482322-94-1P 482322-97-4P
**482323-07-9P 482323-09-1P 482323-10-4P**
482323-11-5P 483966-01-4P 483966-03-6P 483966-10-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(metal ion chelates in validating biol. mols. as drug targets in test animal models)

IT 89346-48-5P
RL: RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(metal ion chelates in validating biol. mols. as drug targets in test animal models)

IT 151476-98-1P
RL: SPN (Synthetic preparation); PREP (Preparation)
(metal ion chelates in validating biol. mols. as drug targets in test animal models)

IT 65618-64-6P 97188-57-3P 219944-94-2P 482322-88-3P 482323-12-6P
482323-13-7P 482323-15-9P 483966-02-5P 483966-04-7P 483966-05-8P
483966-06-9P 483966-07-0P, [2,2'-Bipyridine]-5-methanethiol
483966-09-2P
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(metal ion chelates in validating biol. mols. as drug targets in test animal models)

IT 7429-90-5D, Aluminum, chelates 7429-91-6D, Dysprosium, chelates
7439-88-5D, Iridium, chelates 7439-89-6D, Iron, chelates 7439-91-0D,
Lanthanum, chelates 7439-92-1D, Lead, chelates 7439-94-3D, Lutetium,
chelates 7439-95-4D, MAgnesium, chelates 7439-96-5D, Manganese,
chelates 7439-97-6D, Mercury, chelates 7439-98-7D, Molybdenum,
chelates 7440-00-8D, Neodymium, chelates 7440-02-0D, Nickel, chelates
7440-03-1D, Niobium, chelates 7440-04-2D, Osmium, chelates 7440-05-3D,
Palladium, chelates 7440-06-4D, Platinum, chelates 7440-08-6D,
Polonium, chelates 7440-10-0D, Praseodymium, chelates 7440-12-2D,
Promethium, chelates 7440-15-5D, Rhenium, chelates 7440-16-6D,
Rhodium, chelates 7440-17-7D, Rubidium, chelates 7440-18-8D,
Ruthenium, chelates 7440-19-9D, Samarium, chelates 7440-20-2D,
Scandium, chelates 7440-21-3D, Silicon, chelates 7440-22-4D, Silver,
chelates 7440-24-6D, Strontium, chelates 7440-25-7D, Tantalum,
chelates 7440-26-8D, Technetium, chelates 7440-27-9D, Terbium,
chelates 7440-28-0D, Thallium, chelates 7440-29-1D, Thorium, chelates
7440-30-4D, Thulium, chelates 7440-31-5D, Tin, chelates 7440-32-6D,
Titanium, chelates 7440-33-7D, Tungsten, chelates 7440-36-0D,
Antimony, chelates 7440-38-2D, Arsenic, chelates 7440-39-3D, Barium,
chelates 7440-41-7D, Beryllium, chelates 7440-42-8D, Boron, chelates
7440-43-9D, Cadmium, chelates 7440-45-1D, Cerium, chelates 7440-46-2D,
Cesium, chelates 7440-47-3D, Chromium, chelates 7440-48-4D, Cobalt,
chelates 7440-50-8D, Copper, chelates 7440-52-0D, Erbium, chelates
7440-53-1D, Europium, chelates 7440-54-2D, Gadolinium, chelates
7440-55-3D, Gallium, chelates 7440-56-4D, Germanium, chelates
7440-57-5D, **Gold**, chelates 7440-58-6D, Hafnium, chelates
7440-60-0D, Holmium, chelates 7440-62-2D, Vanadium, chelates
7440-64-4D, Ytterbium, chelates 7440-65-5D, Yttrium, chelates
7440-66-6D, Zinc, chelates 7440-67-7D, Zirconium, chelates 7440-68-8D,
Astatine, chelates 7440-69-9D, Bismuth, chelates 7440-70-2D, Calcium,

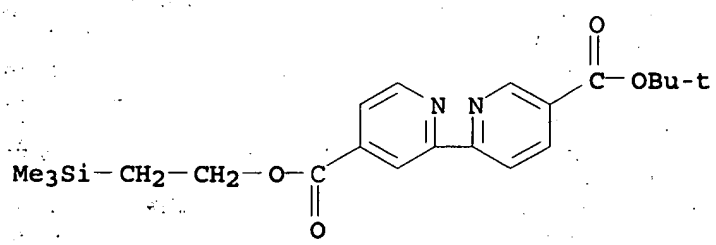
chelates 7440-74-6D, Indium, chelates 7782-49-2D, Selenium, chelates 13494-80-9D, Tellurium, chelates 14701-22-5D, Nickel II, chelates, biological studies 15158-11-9D, Copper II, chelates, biological studies 16065-88-6D, chelates, biological studies 17493-86-6D, Copper I, chelates, biological studies 22537-46-8D, Palladium(4+), chelates, biological studies 22541-53-3D, chelates, biological studies 22541-57-7D, Ruthenium VI, chelates, biological studies 22541-58-8D, Ruthenium IV, chelates, biological studies 22541-59-9D, Ruthenium(2+), chelates, biological studies 22541-63-5D, Cobalt III, chelates, biological studies 22541-64-6D, Nickel(3+), chelates, biological studies 22541-88-4D, Ruthenium III, chelates, biological studies 22542-10-5D, chelates, biological studies 23713-49-7D, Zinc II, chelates, biological studies 36756-57-7D, Platinum(5+), chelates, biological studies 37948-13-3D, Ruthenium(7+), chelates, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(metal ion chelates in validating biol. mols. as drug targets in test animal models)

IT 71160-24-2, Leukotriene B4 119418-04-1, Galanin
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(receptor; metal ion chelates in validating biol. mols. as drug targets in test animal models)

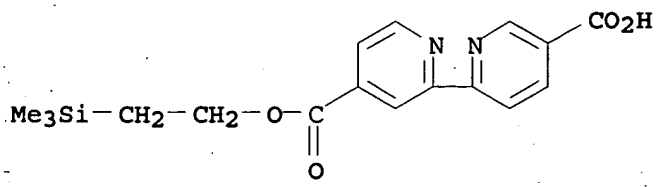
IT 51-61-6, Dopamine, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(transporter; metal ion chelates in validating biol. mols. as drug targets in test animal models)

IT **482323-07-9P 482323-09-1P 482323-10-4P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(metal ion chelates in validating biol. mols. as drug targets in test animal models)

RN 482323-07-9 HCAPLUS
CN [2,2'-Bipyridine]-4,5'-dicarboxylic acid, 5'-(1,1-dimethylethyl) 4-[2-(trimethylsilyl)ethyl] ester (9CI) (CA INDEX NAME)

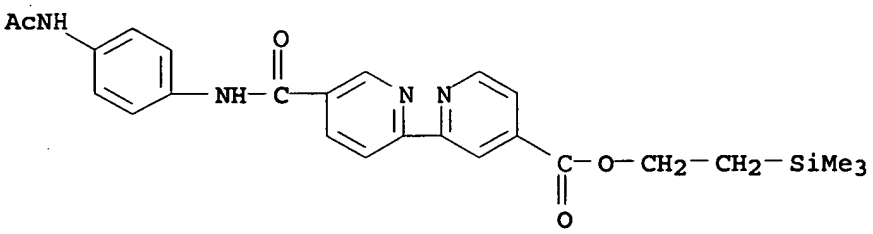



RN 482323-09-1 HCAPLUS
CN [2,2'-Bipyridine]-4,5'-dicarboxylic acid, 4-[2-(trimethylsilyl)ethyl] ester (9CI) (CA INDEX NAME)




RN 482323-10-4 HCAPLUS
CN [2,2'-Bipyridine]-4-carboxylic acid, 5'-[[[4-(acetylamino)phenyl]amino]car

bonyl]-, 2-(trimethylsilyl)ethyl ester (9CI) (CA INDEX NAME)




RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 4 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:23105 HCAPLUS
DN 138:83328
TI Metal ion binding-based chemical libraries useful for drug discovery processes
IN Hoegberg, Thomas; Rist, Oystein; Hjelmencrantz, Anders; Moldt, Peter; Elling, Christian E.; Schwartz, Thue W.; Gerlach, Lars Ole; Holst Lange, Birgitte
PA 7TM Pharma A/S, Den.
SO PCT Int. Appl., 242 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | WO 2003003008 | A1 | 20030109 | WO 2002-DK455 | 20020628 |
| | W: AE, AG, AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EE, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG | | | | |
| | RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| PRAI | DK 2001-1029 | A | 20010629 | | |
| | DK 2001-1032 | A | 20010629 | | |
| | DK 2001-1033 | A | 20010629 | | |
| | DK 2001-1034 | A | 20010629 | | |
| | DK 2001-1035 | A | 20010629 | | |
| | US 2001-301989P | P | 20010629 | | |
| | US 2001-301990P | P | 20010629 | | |

OS MARPAT 138:83328
AB The invention discloses the use of chemical compds. or selections of chemical compds. (libraries) of the general formula R1XFY(R1)GZR1 [F, G = N, O, S, Se, P; X, Y, Z = (un)branched C1-12 alkyl, (hetero)aryl, etc.; R1 = H, ABC; A = coupling or connecting moiety; B = spacer moiety; C = functional group] for in vivo methods for testing or validating the physiol. importance and/or the therapeutic or pharmacol. potential of biol. target mols., notably proteins such as, e.g., receptors and especially 7TM receptors in test animals expressing the biol. target mol. with, notably, a silent, engineered metal ion site. Use of specific metal ion binding sites of a

generic nature in specific biol. target mols. such as, e.g. transmembrane proteins wherein the metal-ion binding site is capable of forming a complex with a metal ion is also described. The invention provides chemical compds. or libraries suitable for use in methods for improving the in vivo pharmacokinetic behavior of metal-ion chelates (e.g. the absorption pattern, the plasma half-life, the distribution, the metabolism and/or the elimination of the metal ion chelates). In order to improve the efficacy of the metal ion chelates impact on the biol. target mol. after administration of the metal ion chelate in vivo to a test animal, it is advantageous e.g. to increase the time period during which the metal ion chelate is in the circulatory system and/or localized at the target. Metal ion chelating compds., which are designed to be suitable for use in a target validation process according to the invention and to libraries of at least two or more of such metal-ion chelating compds. are disclosed.

IC ICM G01N033-50
ICS C07D207-00; C07D209-00; C07D211-00; C07D213-00; C07D215-00; C07D231-00; C07D233-00; C07D235-00; C07D241-00; C07D257-00

CC 1-1 (Pharmacology)
Section cross-reference(s): 27, 28

ST metal chelate library drug discovery; target protein drug discovery metal chelate library; receptor target drug discovery metal chelate library

IT Galanin receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(1; metal ion binding-based chemical libraries for drug discovery processes)

IT Transport proteins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(dopamine transporter; metal ion binding-based chemical libraries for drug discovery processes)

IT Leukotriene receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(leukotriene B4; metal ion binding-based chemical libraries for drug discovery processes)

IT Alkenes, biological studies
Amides, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(library; metal ion binding-based chemical libraries for drug discovery processes)

IT Chelating agents
Drug screening
Drug targets
Molecular modeling
Mutagenesis
Structure-activity relationship
(metal ion binding-based chemical libraries for drug discovery processes)

IT Chelates
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(metal ion binding-based chemical libraries for drug discovery processes)

IT Aldehydes, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(metal ion binding-based chemical libraries for drug discovery processes)

IT Amines, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(metal ion binding-based chemical libraries for drug discovery processes)

IT Carboxylic acids, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(metal ion binding-based chemical libraries for drug discovery processes)

IT Ketones, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)

(metal ion binding-based chemical libraries for drug discovery processes)
IT Metals, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(metal ion binding-based chemical libraries for drug discovery processes)
IT Ylides
RL: RCT (Reactant); RACT (Reactant or reagent)
(phosphonium; metal ion binding-based chemical libraries for drug discovery processes)
IT Protein motifs
(transmembrane domain; metal ion binding-based chemical libraries for drug discovery processes)
IT Proteins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(transmembrane; metal ion binding-based chemical libraries for drug discovery processes)
IT Tachykinin receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(type NK1; metal ion binding-based chemical libraries for drug discovery processes)
IT Biological transport
(uptake, dopamine; metal ion binding-based chemical libraries for drug discovery processes)
IT Phosphonium compounds
RL: RCT (Reactant); RACT (Reactant or reagent)
(ylides; metal ion binding-based chemical libraries for drug discovery processes)
IT Opioid receptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(κ-opioid; metal ion binding-based chemical libraries for drug discovery processes)
IT Adrenoceptors
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(β2; metal ion binding-based chemical libraries for drug discovery processes)
IT 52-90-4, L-Cysteine, biological studies 56-45-1, L-Serine, biological studies 56-84-8, L-Aspartic acid, biological studies 56-85-9, L-Glutamine, biological studies 56-86-0, L-Glutamic acid, biological studies 56-87-1, L-Lysine, biological studies 60-18-4, L-Tyrosine, biological studies 63-68-3, L-Methionine, biological studies 66-71-7D, 1,10-Phenanthroline, derivs.,copper and zinc complexes 70-47-3, L-Asparagine, biological studies 71-00-1, L-Histidine, biological studies 72-19-5, L-Threonine, biological studies 73-22-3, L-Tryptophan, biological studies 74-79-3, L-Arginine, biological studies 90-02-8, biological studies 94-67-7 148-24-3, 8-Quinolinol, biological studies 304-88-1 366-18-7D, 2,2'-Bipyridine, copper and zinc complexes 492-97-7, 2,2'-Bithiophene 495-18-1 496-74-2 607-28-3 694-83-7, 1,2-Cyclohexanediamine 779-84-0 886-08-8 1245-13-2 1262-69-7 1662-01-7 1748-89-6, [2,2'-Bipyridine]-4-carboxylic acid 1762-34-1 2706-56-1, 2-Pyridineethanamine 3002-78-6 3002-81-1 3117-65-5 3248-05-3 3265-24-5 3291-00-7 3731-51-9, 2-Pyridinemethanamine 4199-88-6 4199-89-7 4411-80-7 4433-01-6, [2,2'-Bipyridine]-3,3'-dicarboxylic acid 4733-39-5 5961-35-3 5961-36-4 6153-89-5D, zinc complexes 6153-92-0 7089-68-1 7275-43-6 15439-16-4, 1,4,8,12-Tetraazacyclopentadecane 19437-26-4 19535-47-8, Dipyrido[3,2-a:2',3'-c]phenazine 21911-90-0 23978-55-4 25700-14-5 27318-90-7D, 1,10-Phenanthroline-5,6-dione, zinc complexes 29726-21-4 31301-28-7 32382-63-1 33893-89-9 40386-51-4 50890-67-0 54258-41-2, 1,10-Phenanthrolin-5-amine 56100-24-4 57709-61-2 62027-35-4 65312-43-8, Blood coagulation factor VIIa 69006-93-5, 1H-Benzimidazole-2-carboximidamide 72914-19-3D, zinc and copper

complexes 75449-26-2, [2,2'-Bipyridine]-3,3'-diamine 77692-11-6D, copper complexes 78831-41-1D, zinc complexes 89972-77-0 94268-48-1 96897-04-0 99112-52-4 99970-84-0, [2,2'-Bipyridine]-4,4'-dicarboxaldehyde 105166-53-8, [2,2'-Bipyridin]-3-amine 105942-31-2D, copper complexes 107976-78-3 118724-25-7 123865-76-9D, zinc complexes 128143-89-5 146581-87-5, [2,2'-Bipyridine]-5-methanol 149762-81-2 157378-06-8 179873-48-4, [2,2'-Bipyridine]-5-carboxaldehyde 199282-55-8 219557-28-5 220339-96-8, [2,2'-Bipyridine]-5-methanamine 220340-46-5, [2,2'-Bipyridine]-3-carboxylic acid 294648-47-8, [2,2'-Bipyridine]-5-carboxamide 312603-96-6D, copper complexes 313550-33-3 318512-23-1 482323-17-1D, copper complexes 482323-18-2D, copper complexes 482323-19-3D, copper complexes 482323-20-6 482323-22-8 482323-23-9 482323-24-0, [2,2'-Bipyridine]-3-propanamine 482323-25-1 482323-26-2 482323-27-3 482323-28-4 482323-30-8 482323-31-9 482323-32-0 482323-33-1 482323-34-2 482323-35-3 482323-36-4 482323-37-5, [2,2'-Bipyridine]-3-ethanamine 482323-38-6 482323-39-7 482323-40-0 482323-41-1 482323-42-2 482323-43-3 482323-44-4 482323-45-5 482323-46-6 482323-47-7 482323-48-8 482323-49-9 482323-50-2 482323-51-3 482323-52-4 482323-53-5 482323-54-6 482323-55-7 482323-56-8 482323-57-9 482323-58-0 482323-59-1 482323-60-4 482323-61-5 482323-62-6 482323-63-7 482323-64-8 482323-65-9 482323-66-0 482323-67-1 482323-68-2 482323-69-3 482323-70-6 482323-71-7 482323-72-8 482323-73-9 482323-74-0 482323-75-1 482323-76-2 482323-77-3 482323-78-4 482323-79-5 482323-80-8 482323-81-9 482323-82-0 482323-83-1 482323-84-2 482323-85-3 482323-86-4 482323-87-5 482323-88-6 482323-89-7 482323-90-0 482323-91-1 482323-92-2 482323-93-3 482323-94-4 482323-95-5 482323-96-6 482323-97-7 482323-98-8 482323-99-9 482324-00-5 482324-01-6 482324-02-7 482324-03-8 482324-04-9 482324-05-0 482324-06-1 482324-07-2 482324-08-3 482324-09-4 482324-10-7 482324-11-8 482324-12-9 482324-13-0 482324-14-1 482324-15-2 482324-16-3 482324-17-4 482324-18-5 482324-19-6 482324-20-9 482324-21-0 482324-22-1 482324-23-2 482324-24-3 482324-25-4 482324-26-5 482324-27-6 482324-28-7 482324-29-8 482324-30-1 482324-31-2 482324-32-3 482324-33-4 482324-34-5 482324-35-6 482324-36-7 482324-37-8 482324-38-9 482324-39-0 482324-40-3 482324-41-4 482324-42-5 482324-43-6 482324-44-7 482324-45-8 482324-46-9 482324-47-0 482324-48-1 482324-49-2 482324-50-5 482324-51-6 482324-52-7 482324-53-8 482324-54-9 482324-55-0 482324-56-1 482324-57-2 482324-58-3 482324-59-4 482324-60-7

RL: BSU (Biological study, unclassified); BIOL (Biological study)
(metal ion binding-based chemical libraries for drug discovery processes)

IT 482324-61-8 482324-62-9 482324-63-0 482324-64-1 482324-65-2 482324-66-3 482324-67-4 482324-68-5 482324-69-6 482324-70-9 482324-71-0 482324-76-5 482324-77-6 482324-78-7 482324-79-8 482324-80-1 482324-81-2 482324-82-3 482324-83-4 482324-84-5 482324-85-6 482324-86-7 482324-87-8 482324-88-9 482324-89-0 482324-90-3 482324-91-4 482324-92-5 482324-93-6 482324-94-7 482324-95-8 482324-96-9 482324-97-0 482324-98-1, [2,2'-Bipyridine]-4-methanamine 482324-99-2 482325-00-8 482325-01-9 482325-02-0 482325-03-1 482325-04-2 482325-05-3 482325-06-4 482325-07-5 482325-08-6, [2,2'-Bipyridine]-3-carboxamide 482325-09-7, [2,2'-Bipyridine]-3-methanol 482325-10-0 482325-11-1 482325-12-2 482325-13-3 482325-14-4 482325-15-5 482325-16-6 482325-17-7 482325-18-8 482325-19-9 482325-20-2 482325-21-3 482325-22-4 482325-23-5 482325-24-6 482325-25-7 482325-26-8 482325-27-9 482325-28-0 482325-29-1 482325-30-4 482325-31-5 482325-32-6 482325-33-7 482325-34-8 482325-35-9 482325-36-0 482325-37-1 482325-38-2 482325-39-3 482325-40-6 482325-41-7 482325-42-8

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482325-48-4, [2,2'-Bipyridine]-3-carboxaldehyde 482325-49-5
482325-50-8, [2,2'-Bipyridine]-3-butanamine 482325-51-9 482325-52-0
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482325-88-2 482325-89-3 482325-90-6 482325-91-7 482325-92-8
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482326-07-8 482326-08-9 482326-09-0 482326-10-3 482326-11-4
482326-12-5 482326-13-6 482326-14-7 482326-15-8 482326-16-9
482326-17-0 482326-18-1 482326-19-2 482326-20-5 482326-21-6
482326-22-7 482326-23-8 482326-24-9 482579-58-8
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(metal ion binding-based chemical libraries for drug discovery processes)

IT 15158-11-9, Copper II, biological studies 23713-49-7, Zinc II, biological studies
RL: BSU (Biological study, unclassified); RCT (Reactant); BIOL (Biological study); RACT (Reactant or reagent)
(metal ion binding-based chemical libraries for drug discovery processes)

IT 60-00-4, Edta, properties 491-33-8, 8-Quinolinethiol 29528-30-1
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(metal ion binding-based chemical libraries for drug discovery processes)

IT 75-66-1, 2-Methyl-2-propanethiol 95-54-5, 1,2-Phenylenediamine, reactions 98-98-6, Picolinic acid 100-70-9, 2-Cyanopyridine 107-15-3, 1,2-Ethylenediamine, reactions 108-24-7, Acetic anhydride 109-04-6, 2-Bromopyridine 110-85-0, Piperazine, reactions 122-80-5 693-11-8 1121-60-4, 2-Pyridinecarboxaldehyde 1134-35-6, 4,4'-Dimethyl-2,2'-bipyridyl 1710-98-1 1826-67-1, Vinyl magnesium bromide 1970-80-5, [2,2'-Bipyridine]-5-carboxylic acid 1993-03-9, 2-Fluorophenylboronic acid 2417-90-5, 3-Bromopropionitrile 4572-03-6 5470-11-1, Hydroxylamine hydrochloride 5724-76-5 7429-90-5, Aluminum, reactions 7429-91-6, Dysprosium, reactions 7439-88-5, Iridium, reactions 7439-89-6, Iron, reactions 7439-91-0, Lanthanum, reactions 7439-92-1, Lead, reactions 7439-94-3, , Lutetium, reactions 7439-95-4, Magnesium, reactions 7439-96-5, Manganese, reactions 7439-97-6, Mercury, reactions 7439-98-7, , Molybdenum, reactions 7440-00-8, Neodymium, reactions 7440-02-0, Nickel, reactions 7440-03-1, Niobium, reactions 7440-04-2, Osmium, reactions 7440-05-3, Palladium, reactions 7440-06-4, Platinum, reactions 7440-08-6, Polonium, reactions 7440-10-0, , Praseodymium, reactions 7440-12-2, , Promethium, reactions 7440-15-5, Rhenium, reactions 7440-16-6, Rhodium, reactions 7440-17-7, Rubidium, reactions 7440-18-8, , Ruthenium, reactions 7440-19-9, Samarium, reactions 7440-20-2, Scandium, reactions 7440-21-3, Silicon, reactions 7440-22-4, Silver, reactions 7440-24-6, Strontium, reactions 7440-25-7, Tantalum, reactions 7440-26-8, , Technetium, reactions 7440-27-9, , Terbium, reactions 7440-28-0, , Thallium, reactions 7440-29-1, Thorium, reactions 7440-30-4, Thulium, reactions 7440-31-5, Tin, reactions 7440-32-6, Titanium, reactions 7440-33-7, Tungsten, reactions 7440-36-0, Antimony, reactions 7440-38-2, Arsenic, reactions 7440-39-3, Barium, reactions 7440-41-7, Beryllium, reactions 7440-42-8, Boron, reactions 7440-43-9, Cadmium, reactions 7440-45-1, Cerium, reactions 7440-46-2, Cesium, reactions 7440-47-3, Chromium, reactions 7440-48-4, Cobalt, reactions 7440-50-8, Copper, reactions 7440-52-0, Erbium, reactions 7440-53-1, Europium, reactions 7440-54-2, Gadolinium, reactions 7440-55-3, , Gallium, reactions 7440-56-4,

Germanium, reactions 7440-57-5, **Gold**, reactions 7440-58-6, Hafnium, reactions 7440-60-0, Holmium, reactions 7440-62-2, , Vanadium, reactions 7440-64-4, Ytterbium, reactions 7440-65-5, Yttrium, reactions 7440-66-6, , Zinc, reactions 7440-67-7, Zirconium, reactions 7440-68-8, Astatine, reactions 7440-69-9, Bismuth, reactions 7440-70-2, Calcium, reactions 7440-74-6, Indium, reactions 7782-49-2, , Selenium, reactions 13207-66-4, 5-Amino-8-hydroxyquinoline 13494-80-9, , Tellurium, reactions 13598-36-2D, Phosphonic acid, phosphonate ylides 14508-49-7, 2-Chloropyrazine 14701-22-5, Nickel II, reactions 14805-00-6, 5-Nitro-2,2'-bipyridine 16065-88-6, reactions 17493-86-6, Copper I, reactions 21302-43-2, 5-Amino-8-hydroxyquinoline dihydrochloride 22537-44-6, Ru8+, reactions 22537-46-8, Pd4+, reactions 22541-53-3, reactions 22541-57-7, Ruthenium VI, reactions 22541-58-8, Ruthenium IV, reactions 22541-59-9, Ru2+, reactions 22541-63-5, Cobalt III, reactions 22541-64-6, Ni3+, reactions 22541-88-4, Ruthenium III, reactions 22542-10-5, reactions 36756-57-7, Pt5+, reactions 40134-18-7, 2-Chloronicotinic acid methyl ester 50606-32-1, N-Butoxycarbonylpiperazine 51628-12-7 98820-73-6 104704-09-8 115309-57-4 156457-27-1 162318-34-5 482322-76-9 482323-08-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(metal ion binding-based chemical libraries for drug discovery processes)

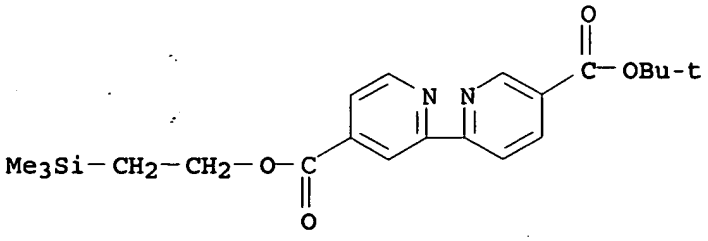
IT 89346-48-5P 114527-27-4P 219944-94-2P 482322-73-6P 482322-79-2P 482322-82-7P 482322-94-1P 482322-97-4P **482323-07-9P** **482323-09-1P** **482323-10-4P** 482323-11-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(metal ion binding-based chemical libraries for drug discovery processes)

IT 873-69-8P 1137-68-4P 1772-01-6P 7471-05-8P 14162-90-4P, [2,2'-Bipyridine]-4-carboxamide 65618-64-6P 93844-96-3P 97188-57-3P 115021-71-1P 146581-82-0P, [2,2'-Bipyridine]-4-carboxaldehyde 149969-30-2P 151476-98-1P 160539-04-8P, [2,2'-Bipyridin]-5-amine 199282-56-9P 219557-36-5P 220340-37-4P, [2,2'-Bipyridine]-4-methanol 482322-56-5P 482322-59-8P 482322-61-2P 482322-63-4P 482322-66-7P 482322-77-0P 482322-84-9P 482322-88-3P 482322-90-7P 482322-95-2P 482322-99-6P 482323-01-3P 482323-06-8P 482323-12-6P 482323-13-7P 482323-14-8P 482323-15-9P
RL: SPN (Synthetic preparation); PREP (Preparation)
(metal ion binding-based chemical libraries for drug discovery processes)

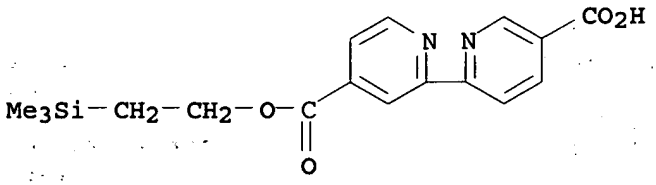
IT 51-61-6, Dopamine, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(uptake; metal ion binding-based chemical libraries for drug discovery processes)

IT **482323-07-9P** **482323-09-1P** **482323-10-4P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(metal ion binding-based chemical libraries for drug discovery processes)

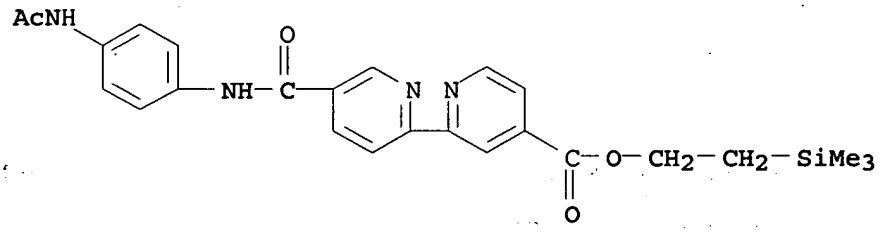
RN 482323-07-9 HCAPLUS
CN [2,2'-Bipyridine]-4,5'-dicarboxylic acid, 5'-(1,1-dimethylethyl) 4-[2-(trimethylsilyl)ethyl] ester (9CI) (CA INDEX NAME)



RN 482323-09-1 HCAPLUS
CN [2,2'-Bipyridine]-4,5'-dicarboxylic acid, 4-[2-(trimethylsilyl)ethyl] ester (9CI) (CA INDEX NAME)



RN 482323-10-4 HCAPLUS
CN [2,2'-Bipyridine]-4-carboxylic acid, 5'-[[[4-(acetylamino)phenyl]amino]carbonyl]-, 2-(trimethylsilyl)ethyl ester (9CI) (CA INDEX NAME)



RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 5 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:768839 HCAPLUS
DN 138:9247
TI Viologen-Functionalized Conductive Surfaces: Physicochemical and Electrochemical Characteristics, and Stability
AU Liu, Xin; Neoh, K. G.; Kang, E. T.
CS Department of Chemical and Environmental Engineering, National University of Singapore, Kent Ridge, GA, 119260, USA
SO Langmuir (2002), 18(23), 9041-9047
CODEN: LANGD5; ISSN: 0743-7463
PB American Chemical Society
DT Journal
LA English
AB The surface functionalization of elec. conductive substrates (indium-Sn oxide (ITO), **Au**, free-standing polypyrrole film (PPY)) with a vinyl group containing viologen (vinyl benzyl viologen, VBV) was carried out. The ITO was 1st silanized, while for the **Au** substrate, self-assembled alkanethiol monolayers were 1st prepared Both substrates

were then subjected to Ar plasma pretreatment prior to UV-induced VBV graft polymerization No pretreatment of the PPY film was necessary before UV-induced VBV graft polymerization The surface composition and microstructure of the as-functionalized substrates were characterized by XPS, UV-visible absorption spectroscopy, and atomic force microscopy (AFM). The effects of plasma pretreatment time of the silane-modified ITO substrates and monomer concentration on the VBV graft polymer concentration were studied. The cyclic voltammetric (CV) response of the as-functionalized ITO substrates was studied in aqueous NaCl solution The CV results support the viologen redox mechanism in which VBV is 1st reduced to the radical cation during the cathodic scan and subsequently oxidized to the dication during the anodic scan. Good stability of the VBV was observed after repeated CV scans, as well as after being maintained at 100° for an extended period of time. This approach of surface functionalization of elec. conductive surfaces with viologen shows great promise for designing electrodes for use in electrochromic and sensing devices.

CC 72-2 (Electrochemistry)
Section cross-reference(s): 35, 66, 74

ST viologen functionalized conductive surface physicochem electrochem characteristics stability; **gold** substrate UV induced graft polymn vinylbenzyl viologen; ITO substrate UV induced graft polymn vinylbenzyl viologen; polypyrrole substrate UV induced graft polymn vinylbenzyl viologen; glycidoxypropyltrimethoxysilane vinylbenzyl viologen graft copolymer ITO

IT Redox reaction
(electrochem.; of viologen-functionalized conductive surfaces on ITO)

IT Chemically modified electrodes
(glycidoxylpropyltrimethoxysilane-bis(vinylbenzyl)bipyridinium dichloride graft copolymer on ITO)

IT Binding energy
X-ray photoelectron spectra
(of ITO and **Au** and polypyrrole modified with viologen-functionalized conductive surfaces)

IT Polymer morphology
(of glycidoxylpropyltrimethoxysilane-bis(vinylbenzyl)bipyridinium dichloride graft copolymer on ITO)

IT Cyclic voltammetry
(of glycidoxylpropyltrimethoxysilane-bis(vinylbenzyl)bipyridinium dichloride graft copolymer on ITO electrode in NaCl solution)

IT Polymerization
(photopolymn., graft; of glycidoxylpropyltrimethoxysilane with bis(vinylbenzyl)bipyridinium dichloride in modification silanized ITO and bis(vinylbenzyl)bipyridinium dichloride in modification of polypyrrole and mercaptopropionic acid SAM on **gold**)

IT Silsesquioxanes
RL: DEV (Device component use); FMU (Formation, unclassified); PRP (Properties); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent); USES (Uses)
(viologen-functionalized conductive surfaces by UV-induced graft polymerization of bis(vinylbenzyl)bipyridinium of silanized surface and physicochem. and electrochem. characteristics, and stability)

IT Self-assembled monolayers
(viologen-functionalized conductive surfaces by UV-induced graft polymerization of bis(vinylbenzyl)bipyridinium on **gold** with mercaptopropionic acid self-assembled monolayer and physicochem. and electrochem. characteristics, and stability)

IT Conducting polymers
(viologen-functionalized conductive surfaces on ITO and **Au** and polypyrrole)

IT 107-96-0, Mercaptopropionic acid

RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(coupling agent; viologen-functionalized conductive surfaces by UV-induced graft polymerization of bis(vinylbenzyl)bipyridinium on **gold** with mercaptopropionic acid SAM and physicochem. and electrochem. characteristics, and stability)

IT 7647-14-5, Sodium chloride (NaCl), uses
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(cyclic voltammetry of glycidoxylpropyltrimethoxysilane-bis(vinylbenzyl)bipyridinium dichloride graft copolymer on ITO electrode in NaCl solution)

IT 2530-83-8, (3-Glycidoxypropyl)trimethoxysilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(photochem. graft polymerization with bis(vinylbenzyl)bipyridinium dichloride for viologen-functionalized conductive surfaces on ITO)

IT 232599-55-2, 1,1'-Bis(4-vinylbenzyl)-4,4'-bipyridinium dichloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(photochem. graft polymerization with glycidoxylpropyltrimethoxysilane on ITO and photochem. graft polymerization on polypyrrole and mercaptopropionic acid SAM on **gold** for viologen-functionalized conductive surfaces)

IT **477201-31-3P**
RL: DEV (Device component use); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); USES (Uses)
(physicochem. and electrochem. characteristics, and stability of ITO modified with)

IT 413579-27-8P, 1,1'-Bis(4-vinylbenzyl)-4,4'-bipyridinium dichloride homopolymer
RL: DEV (Device component use); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); USES (Uses)
(physicochem. and electrochem. characteristics, and stability of polypyrrole and **gold** with ITO modified with mercaptopropionic acid self-assembled monolayer modified with)

IT 50926-11-9, Indium tin oxide
RL: DEV (Device component use); PRP (Properties); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(viologen-functionalized conductive surfaces by UV-induced graft polymerization of bis(vinylbenzyl)bipyridinium of silanized surface and physicochem. and electrochem. characteristics, and stability)

IT 7440-57-5, **Gold**, uses
RL: DEV (Device component use); PRP (Properties); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(viologen-functionalized conductive surfaces by UV-induced graft polymerization of bis(vinylbenzyl)bipyridinium on **gold** with mercaptopropionic acid self-assembled monolayer and physicochem. and electrochem. characteristics, and stability)

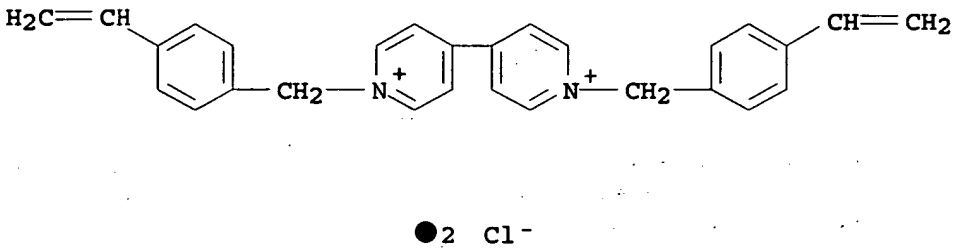
IT 30604-81-0, Polypyrrole
RL: DEV (Device component use); PRP (Properties); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(viologen-functionalized conductive surfaces by UV-induced graft polymerization of bis(vinylbenzyl)bipyridinium on polypyrrole and physicochem. and electrochem. characteristics, and stability)

IT **477201-31-3P**
RL: DEV (Device component use); PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation); USES (Uses)
(physicochem. and electrochem. characteristics, and stability of ITO modified with)

RN 477201-31-3 HCAPLUS
CN 4,4'-Bipyridinium, 1,1'-bis[(4-ethenylphenyl)methyl]-, dichloride, polymer with trimethoxy[3-(oxiranylmethoxy)propyl]silane, graft (9CI) (CA INDEX NAME)

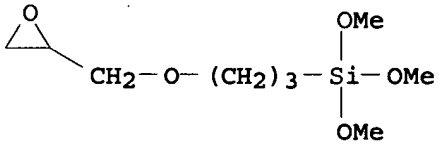
CM 1

CRN 232599-55-2
CMF C28 H26 N2 . 2 Cl



CM 2

CRN 2530-83-8
CMF C9 H20 O5 Si



RE.CNT 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 6 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2000:802777 HCAPLUS
DN 134:127948
TI Magneto-Switchable Bioelectrocatalysis
AU Hirsch, Ronit; Katz, Eugenii; Willner, Itamar
CS Institute of Chemistry, Hebrew University of Jerusalem, Jerusalem, 91904, Israel
SO Journal of the American Chemical Society (2000), 122(48), 12053-12054
CODEN: JACSAT; ISSN: 0002-7863
PB American Chemical Society
DT Journal
LA English
AB The present report addresses for the first time the magnetic control of bioelectrocatalysis, and paves the new concept of magnetobioelectronics.
CC 9-1 (Biochemical Methods)
Section cross-reference(s): 7
ST magnet particles bioelectrocatalysis biosensor redox glucose oxidase
IT Redox reaction catalysts
(bioelectrocatalysis; magneto-switchable bioelectrocatalysis)
IT Catalysis
(electrocatalysis, bio-; magneto-switchable bioelectrocatalysis)
IT Bioreactors
Magnetic particles
(magneto-switchable bioelectrocatalysis)
IT 1892-57-5

RL: NUU (Other use, unclassified); USES (Uses)
(EDC; magneto-switchable bioelectrocatalysis)

IT **321849-40-5P** 321882-45-5P
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(magnetic iron oxide containing; magneto-switchable bioelectrocatalysis)

IT 1760-24-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(magnetic iron oxide containing; magneto-switchable bioelectrocatalysis)

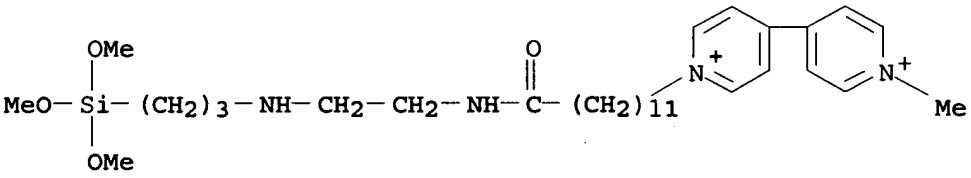
IT 50-99-7, D-Glucose, biological studies 9001-37-0, Glucose oxidase
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(magneto-switchable bioelectrocatalysis)

IT 1317-61-9, Iron oxide (Fe3O4), reactions 154524-08-0 321849-37-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(magneto-switchable bioelectrocatalysis)

IT **321849-40-5P**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(magnetic iron oxide containing; magneto-switchable bioelectrocatalysis)

RN 321849-40-5 HCAPLUS

CN 4,4'-Bipyridinium, 1-(20,20-dimethoxy-12-oxo-21-oxa-13,16-diaza-20-siladocos-1-yl)-1'-methyl- (9CI) (CA INDEX NAME)



RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 7 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2000:373790 HCAPLUS

DN 133:174078

TI Fabrication of an electrode-viologen-hydrogenase heterogeneous system and the electrochemical hydrogen evolution

AU Qian, Dong-Jin; Nakamura, Chikashi; Noda, Kazuyuki; Zorin, Nickolai A.; Miyake, Jun

CS National Institute of Advanced Interdisciplinary Research, AIST, Tsukuba, 305, Japan

SO Applied Biochemistry and Biotechnology (2000), 84-86, 409-418
CODEN: ABIBDL; ISSN: 0273-2289

PB Humana Press Inc.

DT Journal

LA English

AB An indium tin oxide (ITO) electrode was chemical modified by one layer of viologen (VIO) derivative, which possessed a persistent and reproducible electrochem. response. A monolayer of a thermal stable hydrogenase from Thiocapsa roseopersicina was stabilized on a synthesized poly-L-lysine subphase surface and transferred onto the electrode for fabrication of an ITO-VIO-hydrogenase heterogeneous system. Electrochem. properties of both the ITO-VIO monolayer and the heterogeneous ITO-VIO-hydrogenase system have been investigated. Hydrogen evolution could be measured by potentiostating the VIO-hydrogenase-covered ITO electrode to "electroplate" [(VIO+)n]surf, and a large increase in hydrogen evolution

was observed when using an electrolyte solution containing sodium dithionite. We discuss the possible electron transfer process.

CC **9-1 (Biochemical** Methods)
Section cross-reference(s): 7

ST enzyme electrode viologen hydrogenase hydrogen formation

IT Enzyme electrodes
Thiocapsa roseopersicina
(fabrication of electrode-viologen-hydrogenase heterogeneous system and measurement of electrochem. hydrogen evolution)

IT Viologens
RL: DEV (Device component use); USES (Uses)
(fabrication of electrode-viologen-hydrogenase heterogeneous system and measurement of electrochem. hydrogen evolution)

IT 1333-74-0, Hydrogen, analysis
RL: ANT (Analyte); FMU (Formation, unclassified); ANST (Analytical study); FORM (Formation, nonpreparative)
(fabrication of electrode-viologen-hydrogenase heterogeneous system and measurement of electrochem. hydrogen evolution)

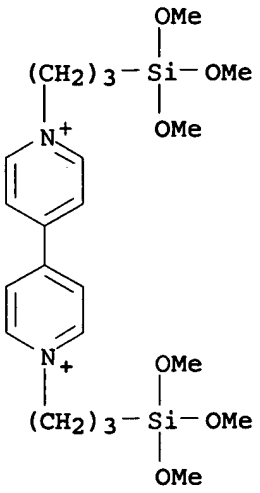
IT 9027-05-8, Hydrogenase
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); DEV (Device component use); BIOL (Biological study); USES (Uses)
(fabrication of electrode-viologen-hydrogenase heterogeneous system and measurement of electrochem. hydrogen evolution)

IT 25104-18-1, Poly-L-lysine 38000-06-5, Poly-L-lysine 50926-11-9, Indium tin oxide **74173-49-2**
RL: DEV (Device component use); USES (Uses)
(fabrication of electrode-viologen-hydrogenase heterogeneous system and measurement of electrochem. hydrogen evolution)

IT **74173-49-2**
RL: DEV (Device component use); USES (Uses)
(fabrication of electrode-viologen-hydrogenase heterogeneous system and measurement of electrochem. hydrogen evolution)

RN 74173-49-2 HCAPLUS

CN 4,4'-Bipyridinium, 1,1'-bis[3-(trimethoxysilyl)propyl]-, dibromide (9CI) (CA INDEX NAME)



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RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 8 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1997:727251 HCAPLUS
DN 127:293885
TI Electrochemically Assisted Sol-Gel Process for the Synthesis of Polysiloxane Films Incorporating Phenothiazine Dyes Analogous to Methylene Blue. Structure and Ion-Transport Properties of the Films via Spectroscopic and Electrochemical Characterization
AU Leventis, Nicholas; Chen, Muguo
CS Department of Chemistry, University of Missouri, Rolla Rolla, MO, 65409, USA
SO Chemistry of Materials (1997), 9(11), 2621-2631
CODEN: CMATEX; ISSN: 0897-4756
PB American Chemical Society
DT Journal
LA English
AB A sol-gel process is used for electrochem. manipulation of the solubility of trimethoxysilyl group-modified methylene blue on an electrode in an aqueous environment. The process lasts for 2-3 h and results in electrode derivatization with a silsesquioxane network incorporating methylene blue. Crosslinking is completed by drying the films at room temperature for 2 days. The concentration of the phenothiazine moieties in the resulting zero films was .apprx.3.9 M and the film d. .apprx.2.6 g/cm3. The average distance between phenothiazine moieties is <5 Å allowing interactions between their π-systems. The narrow pores between monomer units restrict movement of hydrated charge-compensating ions, so that the redox switching of the films depends upon the chemical identity of both the cation and anion of the supporting electrolyte. The films retain the electrochromic and electrocatalytic properties of the parent dye; for example, **gold** electrodes derivatized with the film mediate reduction of cytochrome c at potentials close to its standard electrochem. potential.
CC 36-5 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): 35

ST methoxysilyl deriv methylene blue electropolymn; silsesquioxane deriv methylene blue structure; charge transport silsesquioxane deriv methylene blue

IT Reduction
(cytochrome c reduction in presence of silsesquioxane films prepared via electropolymn. of trimethoxysilyl derivative of methylene blue)

IT Electric conductivity
Polymer chains
(structure and charge transport properties of silsesquioxane films prepared via electropolymn. of trimethoxysilyl derivative of methylene blue)

IT Silsesquioxanes
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(structure and charge transport properties of silsesquioxane films prepared via electropolymn. of trimethoxysilyl derivative of methylene blue)

IT 9007-43-6, Cytochrome c, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(cytochrome c reduction in presence of silsesquioxane films prepared via electropolymn. of trimethoxysilyl derivative of methylene blue)

IT **172703-24-1P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(monomer; structure and charge transport properties of silsesquioxane films prepared via electropolymn. of trimethoxysilyl derivative of methylene blue)

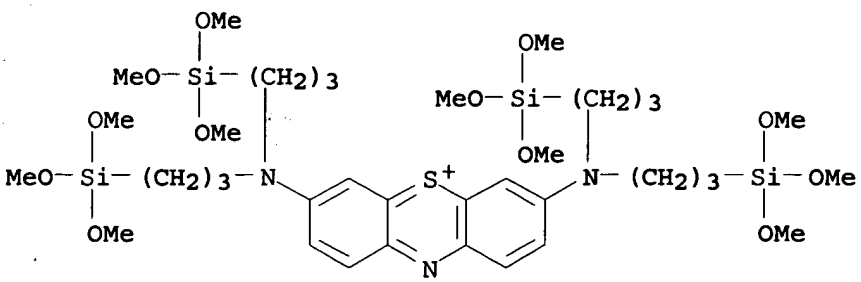
IT 2487-90-3, Trimethoxysilane 194287-65-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(starting material for monomer; structure and charge transport properties of silsesquioxane films prepared via electropolymn. of trimethoxysilyl derivative of methylene blue)

IT **172703-25-2P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(structure and charge transport properties of silsesquioxane films prepared via electropolymn. of trimethoxysilyl derivative of methylene blue)

IT **172703-24-1P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(monomer; structure and charge transport properties of silsesquioxane films prepared via electropolymn. of trimethoxysilyl derivative of methylene blue)

RN 172703-24-1 HCAPLUS

CN Phenothiazin-5-ium, 3,7-bis[bis[3-(trimethoxysilyl)propyl]amino]-, bromide (9CI) (CA INDEX NAME)

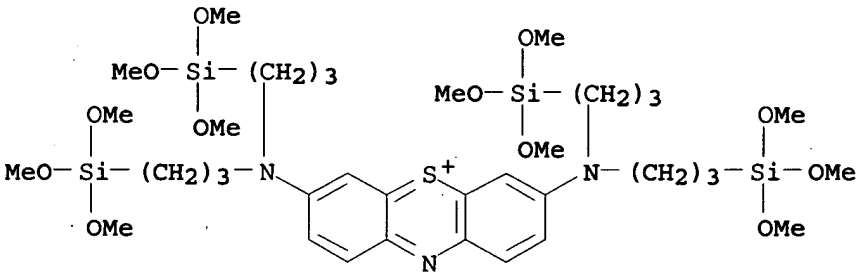


● $Br^-$

IT **172703-25-2P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(structure and charge transport properties of silsesquioxane films prepared via electropolymn. of trimethoxysilyl derivative of methylene blue)
RN 172703-25-2 HCAPLUS
CN Phenothiazin-5-ium, 3,7-bis[bis[3-(trimethoxysilyl)propyl]amino]-, bromide, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 172703-24-1
CMF C36 H66 N3 O12 S Si4 . Br



● $Br^-$

RE.CNT 65 THERE ARE 65 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 9 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1996:666067 HCAPLUS
DN 126:27764
TI Effect of sulfur and nitrogen dioxides, hydrogen sulfide, mercury and lead nitrates on pollen germination in presence of pyridinium organosilicon methylides
AU Myagachenko, A. P.; Gruntkovskaya, T. G.; Kolesnik, Yu P.
CS P. D. Osipenko Berdyansk State Pedagogical Institute, Berdyansk, 332440, Russia
SO Fiziologiya i Biokhimiya Kul'turnykh Rastenii (1996), 28(4), 251-260
CODEN: FBKRAT; ISSN: 0256-1425
PB Naukova Dumka
DT Journal
LA Russian
AB Water soluble pyridinium organosilicon methylides poly(organo)pyridinium-methylidesylsesquioxane (compound 1) and 1-dipyridilium-methylidetetramethylsiloxane in 0.1, 0.01 and 0.001% concns. have been studied under laboratory conditions for their effect of germination of the apple and apricot pollen as affected by gas mixture (sulfur and nitrogen dioxides), nitrates of bivalent mercury and lead as well as UV-irradiations. It is established that under the exptl. conditions the studied pyridinium organosilicon methylides in concentration of 0.1-0.01% possess the protector properties most expressed in the compound 1 without UV-irradiation Under UV-irradiation the dipyridilium (viologenic) derivative proves to be stronger.
CC **4-3** (Toxicology)
Section cross-reference(s): **8**

ST organosilicon methylide pollen germination mercury lead; sulfur nitrogen dioxide pollen germination organosilicon

IT Apple
Apricot (Prunus armeniaca)
Pollen germination
UV radiation
(sulfur and nitrogen dioxides, hydrogen sulfide, mercury and lead nitrates effect on pollen germination in presence of pyridinium organosilicon methylides)

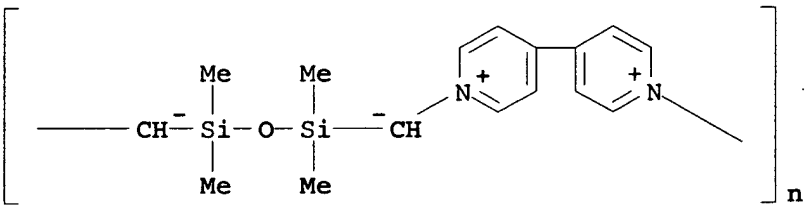
IT 7439-92-1, Lead, biological studies 7439-97-6, Mercury, biological studies 7446-09-5, Sulfur dioxide, biological studies 7783-06-4, Hydrogen sulfide, biological studies 10102-44-0, Nitrogen dioxide, biological studies
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(sulfur and nitrogen dioxides, hydrogen sulfide, mercury and lead nitrates effect on pollen germination in presence of pyridinium organosilicon methylides)

IT 184687-73-8 184687-74-9 **184687-75-0**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(sulfur and nitrogen dioxides, hydrogen sulfide, mercury and lead nitrates effect on pollen germination in presence of pyridinium organosilicon methylides)

IT **184687-75-0**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(sulfur and nitrogen dioxides, hydrogen sulfide, mercury and lead nitrates effect on pollen germination in presence of pyridinium organosilicon methylides)

RN 184687-75-0 HCAPLUS

CN Poly[[4,4'-bipyridinium]-1,1'-diylmethylene(1,1,3,3-tetramethyl-1,3-disiloxanediyl)methylene bis(inner salt)] (9CI) (CA INDEX NAME)



L51 ANSWER 10 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1996:191556 HCAPLUS

DN 124:337288

TI Devices and methods for detection of an analyte based upon light interference

IN Sandstrom, Torbjorn; Stiblert, Lars; Maul, Diana M.

PA Biostar, Inc., USA

SO U.S., 69 pp., Cont.-in-part of U. S. Ser. No. 923,268, abandoned.
CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 5494829 | A | 19960227 | US 1993-75128 | 19930610 |
| | US 5631171 | A | 19970520 | US 1995-455493 | 19950531 |

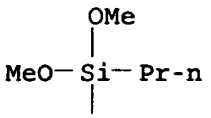
PRAI US 1992-923268 B2 19920731
US 1993-75128 A1 19930610

AB Instrument configured and arranged to detect the presence or amount of an analyte of interest on the substrate of an optical device is disclosed. The instrument has a source of linearly polarized, monochromatic light positioned at an angle other than Brewster's angle relative to the substrate; and an analyzer positioned at the same angle relative to the substrate at a location suitable for detecting reflected polarized light from the substrate; wherein the analyzer is configured and arranged to approx. maximize the change in intensity of the light reflected from the substrate that is transmitted through the analyzer when a change in mass occurs at the substrate relative to an unreacted surface.

IC ICM G01N033-543
ICS G01N
INCL 436518000
CC **9-1** (**Biochemical** Methods)
ST app light interference immunoassay; bacteria antibody antigen detection app
IT Bacteria
Haemophilus influenzae
Neisseria meningitidis
Streptococcus pneumoniae
(devices and methods for detection of an analyte based upon light interference)
IT Antibodies
Antigens
RL: ANT (Analyte); ANST (Analytical study)
(devices and methods for detection of an analyte based upon light interference)
IT Latex
RL: BUU (Biological use, unclassified); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process); USES (Uses)
(devices and methods for detection of an analyte based upon light interference)
IT Immunoassay
(enzyme-linked immunosorbent assay, devices and methods for detection of an analyte based upon light interference)
IT 9001-12-1, Collagenase 9003-99-0, Peroxidase
RL: ANT (Analyte); ANST (Analytical study)
(devices and methods for detection of an analyte based upon light interference)
IT 75-78-5, Dimethyldichlorosilane 9003-17-2D, Polybutadiene, triethoxysilyl-modified 9003-53-6 9016-00-6D, Poly dimethylsiloxane, aminoalkyl derivs. 31900-57-9D, Poly dimethylsiloxane, aminoalkyl derivs. 144123-65-9 163442-68-0, Starburst 5th generation **176499-35-7** 176499-36-8 176499-37-9
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(devices and methods for detection of an analyte based upon light interference)
IT **176499-35-7**
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(devices and methods for detection of an analyte based upon light interference)
RN 176499-35-7 HCAPLUS
CN Aziridine, polymer with trimethoxypropylsilane (9CI) (CA INDEX NAME)

CM 1

CRN 1067-25-0
CMF C6 H16 O3 Si



CM 2

CRN 151-56-4
CMF C2 H5 N

L51 ANSWER 11 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1995:1006726 HCAPLUS
DN 124:111698
TI Devices for detection of an analyte based upon light interference
IN Bogart, Gregory R.; Moddel, Garret R.; Maul, Diana M.; Etter, Jeffrey B.
PA Biostar, Inc., USA
SO U.S., 63 pp. Cont.-in-part of U.S. Ser. No. 873,097, abandoned.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 14

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 5468606 | A | 19951121 | US 1992-923304 | 19920731 |
| | AU 9179004 | A1 | 19921021 | AU 1991-79004 | 19910320 |
| | AU 653940 | B2 | 19941020 | | |
| | EP 539383 | A1 | 19930505 | EP 1991-910056 | 19910320 |
| | EP 539383 | B1 | 19960918 | | |
| | R: BE, CH, DE, ES, FR, GB, IT, LI, LU, NL, SE | | | | |
| | JP 05506936 | T2 | 19931007 | JP 1991-509344 | 19910320 |
| | JP 3193373 | B2 | 20010730 | | |
| | ES 2094224 | T3 | 19970116 | ES 1991-910056 | 19910320 |
| | JP 2001235473 | A2 | 20010831 | JP 2000-287242 | 19910320 |
| | EP 1122539 | A2 | 20010808 | EP 2001-111726 | 19920211 |
| | EP 1122539 | A3 | 20011107 | | |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC | | | | |
| | EP 1122540 | A2 | 20010808 | EP 2001-111727 | 19920211 |
| | EP 1122540 | A3 | 20011107 | | |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC | | | | |
| | JP 2002189028 | A2 | 20020705 | JP 2001-312846 | 19920211 |
| | US 5482830 | A | 19960109 | US 1993-76320 | 19930610 |
| | US 5639671 | A | 19970617 | US 1995-412600 | 19950328 |
| | JP 10288616 | A2 | 19981027 | JP 1998-5911 | 19980114 |
| | JP 2951300 | B2 | 19990920 | | |
| | JP 2004045421 | A2 | 20040212 | JP 2003-323351 | 20030916 |
| PRAI | US 1989-408291 | B2 | 19890918 | | |

| | | | |
|---|---|---|---|
| | US 1989-408296 | B2 | 19890918 |
| | US 1991-653064 | B2 | 19910211 |
| | US 1992-873097 | B2 | 19920424 |
| | US 1986-832682 | B2 | 19860225 |
| | US 1988-260317 | B2 | 19881020 |
| | JP 1990-513789 | A3 | 19900918 |
| | US 1991-653052 | B2 | 19910211 |
| | EP 1991-910056 | A | 19910320 |
| | JP 1991-509344 | A3 | 19910320 |
| | WO 1991-US1781 | A | 19910320 |
| | EP 1992-906299 | A3 | 19920211 |
| | JP 1992-505739 | A3 | 19920211 |
| | JP 2001-312846 | A3 | 19920211 |
| | US 1992-917121 | B2 | 19920731 |
| | US 1992-923048 | B2 | 19920731 |
| | US 1992-923304 | B2 | 19920731 |
| | US 1993-76319 | B1 | 19930610 |

AB Device for detecting the presence or amount of an analyte of interest, such as virus and enzyme, is disclosed. The device has a substrate possessing an optically active surface which exhibits a first color in response to light impinging thereon, and exhibits a second color comprising a combination of wavelengths of light different from the first color or comprising an intensity of at least one wavelength of light different from the first color, in response to the light when the analyte is present on the surface in any amount selected from 0.1 nM, 0.1 ng/mL, 50 fg, and 2x103 organisms comprising the analyte.

IC ICM G01N033-543
ICS G01N033-545; G01N033-551; G01N033-552

INCL 435005000

CC **9-1** (**Biochemical** Methods)

ST app light interference analyte detn

IT Hepatitis
(antigen; devices for detection of an analyte based upon light interference)

IT Autoimmune disease
Bacteria
Birch
Haemophilus influenzae
Meningitis
Microorganism
Neisseria meningitidis
Neoplasm
Pollen
Streptococcus pneumoniae
Virus
(devices for detection of an analyte based upon light interference)

IT Allergens
Antibodies
Hormones
Rheumatoid factors
RL: ANT (Analyte); ANST (Analytical study)
(devices for detection of an analyte based upon light interference)

IT Enzymes
RL: ANT (Analyte); ARG (Analytical reagent use); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(devices for detection of an analyte based upon light interference)

IT Carbohydrates and Sugars, uses
Lipids, uses
Metals, uses

Nucleic acids
Polysaccharides, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(devices for detection of an analyte based upon light interference)

IT Titanates
RL: DEV (Device component use); USES (Uses)
(polymeric; devices for detection of an analyte based upon light interference)

IT Siloxanes and Silicones, uses
RL: DEV (Device component use); USES (Uses)
(polymers containing; devices for detection of an analyte based upon light interference)

IT Antigens
RL: ANT (Analyte); ANST (Analytical study)
(CEA (carcinoembryonic antigen), devices for detection of an analyte based upon light interference)

IT Immunoglobulins
RL: ANT (Analyte); ANST (Analytical study)
(E, devices for detection of an analyte based upon light interference)

IT Streptococcus
(group A, antigen; devices for detection of an analyte based upon light interference)

IT Streptococcus
(group B, antigen; devices for detection of an analyte based upon light interference)

IT Virus, animal
(human immunodeficiency 1, antigen; devices for detection of an analyte based upon light interference)

IT Virus, animal
(human immunodeficiency 2, antigen; devices for detection of an analyte based upon light interference)

IT Nucleotides, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(oligo-, devices for detection of an analyte based upon light interference)

IT Virus, animal
(respiratory syncytial, antigen; devices for detection of an analyte based upon light interference)

IT 9001-12-1, Collagenase 9003-99-0, Peroxidase
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(devices for detection of an analyte based upon light interference)

IT 409-21-2, Silicon carbide, uses 1314-23-4, Zirconium oxide, uses 1760-24-3 7782-40-3, Diamond, uses 9002-98-6D, trimethoxysilylpropyl-terminated 9003-17-2D, Polybutadiene, triethoxysilyl-modified 9003-53-6, Polystyrene 11105-01-4, Silicon oxynitride **164583-54-4**
RL: DEV (Device component use); USES (Uses)
(devices for detection of an analyte based upon light interference)

IT 7631-86-9, Silicon dioxide, uses 7803-62-5, Silane, uses 12033-89-5, Silicon nitride, uses 13463-67-7, Titanium dioxide, uses
RL: DEV (Device component use); USES (Uses)
(polymeric; devices for detection of an analyte based upon light interference)

IT **164583-54-4**
RL: DEV (Device component use); USES (Uses)
(devices for detection of an analyte based upon light interference)

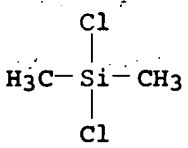
RN 164583-54-4 HCAPLUS
CN Aziridine, polymer with dichlorodimethylsilane (9CI) (CA INDEX NAME)

CM 1

CRN 151-56-4
CMF C2 H5 N

CM 2

CRN 75-78-5
CMF C2 H6 Cl2 Si



L51 ANSWER 12 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1995:638702 HCAPLUS
DN 123:51682
TI Devices for detection of an analyte based upon light interference
IN Miller, B. John; Maul, Diana M.; Blessing, James; Crosby, Mark; Kelley, Howard
PA Biostar, Inc., USA
SO U.S., 71 pp. Cont.-in-part of U.S. Ser. No. 923,332,abandoned.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 14

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 5418136 | A | 19950523 | US 1993-76719 | 19930610 |
| | AU 9179004 | A1 | 19921021 | AU 1991-79004 | 19910320 |
| | AU 653940 | B2 | 19941020 | | |
| | EP 539383 | A1 | 19930505 | EP 1991-910056 | 19910320 |
| | EP 539383 | B1 | 19960918 | | |
| | R: BE, CH, DE, ES, FR, GB, IT, LI, LU, NL, SE | | | | |
| | JP 05506936 | T2 | 19931007 | JP 1991-509344 | 19910320 |
| | JP 3193373 | B2 | 20010730 | | |
| | ES 2094224 | T3 | 19970116 | ES 1991-910056 | 19910320 |
| | JP 2001235473 | A2 | 20010831 | JP 2000-287242 | 19910320 |
| | EP 546222 | A1 | 19930616 | EP 1991-308968 | 19911001 |
| | EP 546222 | B1 | 19970910 | | |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE | | | | |
| | US 5955377 | A | 19990921 | US 1995-403565 | 19950417 |
| PRAI | EP 1991-308968 | A | 19911001 | | |
| | US 1992-923332 | B2 | 19920731 | | |
| | US 1991-653052 | A2 | 19910211 | | |
| | EP 1991-910056 | A | 19910320 | | |
| | JP 1991-509344 | A3 | 19910320 | | |
| | WO 1991-US1781 | A | 19910320 | | |

US 1992-923090 B2 19920731
US 1993-75693 B1 19930610

AB Disclosed is an optical assay device having an active receptive surface supported on a pedestal and held within a first container; the first container comprising first absorbent material located at the base of the pedestal, configured and arranged to absorb liquid draining from the surface, and having a second container, hingedly connected to one side of the first container, the second container comprising a second absorbent material, wherein the second container can be closed to the first container by rotation about the hinge, and wherein such closing causes the second absorbent material to contact the surface. The devices are used for the detection of antibodies to or antigens of, e.g., human immunodeficiency virus, hepatitis viruses, Chlamydia, Streptococcus, etc.

IC ICM G01N033-543
ICS G01N033-544; G01N033-552; G01N033-569

INCL 435005000

CC **9-1** (**Biochemical** Methods)
Section cross-reference(s): 15, 73

ST light interference app antigen antibody detection; virus antibody antigen detection app; HIV detection app

IT Bacteria
Chlamydia
Streptococcus
Virus
(devices for detection of analytes based upon light interference)

IT Antibodies
RL: ANT (Analyte); ARG (Analytical reagent use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(devices for detection of analytes based upon light interference)

IT Antigens
Chelating agents
Enzymes
Hormones
Lipopolysaccharides
Nucleic acids
Receptors
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(devices for detection of analytes based upon light interference)

IT Glass, oxide
Siloxanes and Silicones, analysis
RL: ARU (Analytical role, unclassified); DEV (Device component use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(devices for detection of analytes based upon light interference)

IT Optical detectors
(interferometric; devices for detection of analytes based upon light interference)

IT Virus, animal
(hepatitis A, devices for detection of analytes based upon light interference)

IT Virus, animal
(hepatitis B, devices for detection of analytes based upon light interference)

IT Virus, animal
(hepatitis C, devices for detection of analytes based upon light interference)

IT Virus, animal
(hepatitis D, devices for detection of analytes based upon light interference)

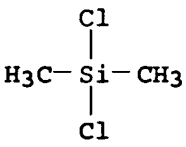
IT Virus, animal
(hepatitis E, devices for detection of analytes based upon light interference)
IT Virus, animal
(herpes simplex, devices for detection of analytes based upon light interference)
IT Virus, animal
(human immunodeficiency 1, devices for detection of analytes based upon light interference)
IT Virus, animal
(human immunodeficiency 2, devices for detection of analytes based upon light interference)
IT Nucleotides, analysis
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(oligo-, devices for detection of analytes based upon light interference)
IT Virus, animal
(respiratory syncytial, devices for detection of analytes based upon light interference)
IT 1760-24-3
RL: ARG (Analytical reagent use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(devices for detection of analytes based upon light interference)
IT 7440-21-3, Silicon, analysis 9003-17-2D, Polybutadiene, triethoxysilyl-modified 9003-53-6, Polystyrene 9016-00-6, Polydimethylsiloxane 12033-89-5, Silicon nitride, analysis 13463-67-7, Titanium dioxide, analysis 31900-57-9, Polydimethylsiloxane 130284-95-6 156048-34-9 156730-91-5 164583-53-3 **164583-54-4**
RL: ARU (Analytical role, unclassified); DEV (Device component use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(devices for detection of analytes based upon light interference)
IT **164583-54-4**
RL: ARU (Analytical role, unclassified); DEV (Device component use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(devices for detection of analytes based upon light interference)
RN 164583-54-4 HCAPLUS
CN Aziridine, polymer with dichlorodimethylsilane (9CI) (CA INDEX NAME)

CM 1

CRN 151-56-4
CMF C2 H5 N

CM 2

CRN 75-78-5
CMF C2 H6 Cl2 Si



L51 ANSWER 13 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1994:599852 HCAPLUS
DN 121:199852
TI Viologen derivative containing polysiloxane as an electron-transfer mediator in amperometric glucose sensors
AU Karan, Hiroko I.; Lan, Hsing Lin; Okamoto, Yoshiyuki
CS Medgar Evers College, University New York, Brooklyn, NY, 11225, USA
SO ACS Symposium Series (1994), 556(Diagnostic Biosensor Polymers), 169-79
CODEN: ACSMC8; ISSN: 0097-6156
DT Journal
LA English
AB Viologen derivs. which have higher oxidation potentials than that of FAD can mediate electrons efficiently from the FAD centers of glucose oxidase to the electrode surface. The oxidation potential of viologen derivs. are lower than those of ferrocene derivs. or quinones and hence sensors can operate at potentials where the oxidation of common interferents in biol. fluid are minimized. Since viologen derivs. are water soluble, insol. viologen-containing siloxane polymer was prepared for this study to prevent the mediator diffusing away from the electrode surface into the bulk media. Sensors constructed from this polymer and glucose oxidase efficiently mediated electron transfer and showed linear response in clin. relevant ranges of glucose concns.
CC 9-1 (**Biochemical** Methods)
Section cross-reference(s): 72
ST amperometric glucose electrode viologen polysiloxane deriv; electron transfer mediator viologen polysiloxane deriv
IT Electron exchangers
(viologen derivative containing polysiloxane as electron-transfer mediator in amperometric glucose sensors)
IT Electrodes
(bio-, enzyme, viologen derivative containing polysiloxane as electron-transfer mediator in amperometric glucose sensors)
IT 50-99-7, D Glucose, analysis
RL: ANT (Analyte); ANST (Analytical study)
(viologen derivative containing polysiloxane as electron-transfer mediator in amperometric glucose sensors)
IT 9001-37-0D, Glucose oxidase, **immobilized**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(viologen derivative containing polysiloxane as electron-transfer mediator in amperometric glucose sensors)
IT **158141-73-2P**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(viologen derivative containing polysiloxane as electron-transfer mediator in amperometric glucose sensors)
IT 100-14-1, p-Nitrobenzyl chloride 553-26-4, 4,4'-Bipyridyl 1592-20-7, p-Chloromethylstyrene 156118-35-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(viologen derivative containing polysiloxane as electron-transfer mediator in amperometric glucose sensors)

IT 158141-71-0P 158141-74-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(viologen derivative containing polysiloxane as electron-transfer mediator in amperometric glucose sensors)

IT **158141-73-2P**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(viologen derivative containing polysiloxane as electron-transfer mediator in amperometric glucose sensors)

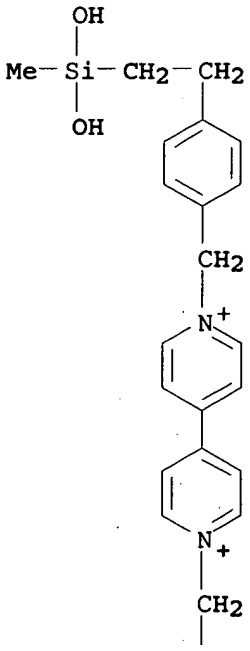
RN 158141-73-2 HCAPLUS

CN 4,4'-Bipyridinium, 1-[[4-[2-(dihydroxymethylsilyl)ethyl]phenyl]methyl]-1'-[(4-nitrophenyl)methyl]-, dichloride, polymer with [2-[4-(chloromethyl)phenyl]ethyl]methylsilanediol and dimethylsilanediol (9CI) (CA INDEX NAME)

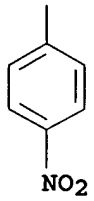
CM 1

CRN 158141-72-1
CMF C27 H29 N3 O4 Si . 2 Cl

PAGE 1-A



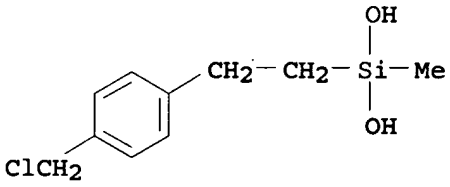
PAGE 2-A



●2 Cl⁻

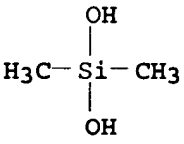
CM 2

CRN 156759-02-3
CMF C10 H15 Cl O2 Si



CM 3

CRN 1066-42-8
CMF C2 H8 O2 Si



L51 ANSWER 14 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1994:128912 HCAPLUS
DN 120:128912
TI Surface determinants of neuronal survival and growth on self-assembled monolayers in culture
AU Stenger, D. A.; Pike, C. J.; Hickman, J. J.; Cotman, C. W.
CS Code 6900, Naval Research Laboratory, Washington, DC, 20375, USA
SO Brain Research (1993), 630(1-2), 136-47
CODEN: BRREAP; ISSN: 0006-8993
DT Journal
LA English
AB The authors have studied the modulation of hippocampal neuron morphol. development in vitro using surfaces derivatized with aminosilane self-assembled monolayers (SAMs). The efficacies of model SAMs, alone, or

in combination with adsorbed heparan sulfate glycosaminoglycan (HS), are related to the phys. and chemical properties of the surfaces. These properties are determined using XPS (XPS), optical ellipsometry, and wettability measurements. The ability of surfaces to promote somal adhesion and the maintenance of discrete neurites appears to be sensitive to the d. and accessibility of pos. charged amine or amide groups, and has less of an apparent relationship to the surface d. of uncharged amines. Aromatic ring-containing aminosilanes are ineffective in promoting neuron growth, while adsorbed HS augments the neurite-promoting capacity of one marginally adhesive SAM. These results are relevant to an improved understanding of the 'non-specific' contributions of the **substrate** in affecting neuronal development and the rational design of model surface coatings for neuronal culture.

CC **9-11** (**Biochemical** Methods)
Section cross-reference(s): **13**

ST nerve culture hippocampus self assembled monolayer; aminosilane monolayer nerve culture hippocampus

IT Nerve
(cell culture of, of hippocampus, development and growth of, on aminosilance self-assembled monolayers)

IT Animal tissue culture
(of nerve of hippocampus, on aminosilance self-assembled monolayers)

IT Brain, composition
(hippocampus, nerves of, cell culture survival and growth of, aminosilane self-assembled monolayers effect on)

IT Membrane, biological
(monolayer, daminosilane, nerve cell of hippocampus culture on, growth and survival on)

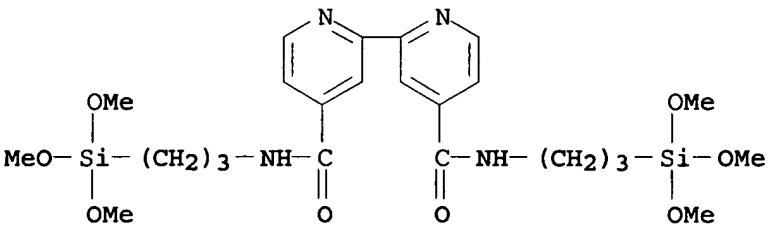
IT 9050-30-0, Heparan sulfate
RL: BIOL (Biological study)
(aminosilane self-assembled monolayer preincubation with, in nerve cell culture development and growth)

IT 1760-24-3 13598-78-2, Aminosilane 35141-30-1 35141-36-7 75822-22-9 106996-32-1 **145965-09-9**
RL: BIOL (Biological study)
(self-assembled monolayer, nerve cell culture development and growth on)

IT **145965-09-9**
RL: BIOL (Biological study)
(self-assembled monolayer, nerve cell culture development and growth on)

RN 145965-09-9 HCAPLUS

CN [2,2'-Bipyridine]-4,4'-dicarboxamide, N,N'-bis[3-(trimethoxysilyl)propyl]- (9CI) (CA INDEX NAME)



L51 ANSWER 15 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1993:526168 HCAPLUS

DN 119:126168

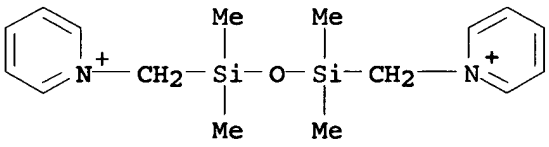
TI Complexation of palladium(II), platinum(II) and **gold**(III) with bis(pyridinomethylene)disiloxanes in water

AU Myagchenko, A. P.; Kolesnik, Yu. R.
CS Berdyansk. Gos. Pedagog. Inst., Berdyansk, Ukraine

SO Koordinatsionnaya Khimiya (1992), 18(12), 1199-205
CODEN: KOKHDC; ISSN: 0132-344X
DT Journal
LA Russian

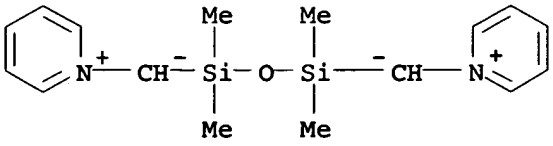
AB A potentiometric method was used to study the interactions of the chlorides of Pd(II), Pt(II) and **Au**(III) with 1,3-bis(1-pyridinomethylene)disiloxane and dichloro-1,3-bis(1-pyridinomethylene)tetramethyldisiloxane in H2O. For low concentration of the ligand (10-6 to 10-5 mol/L), a polynuclear structure appears, in which 1 mol. of ligand binds 25-27 mols. of PdCl2, 18-20 mols. of PtCl2, or 10-12 mols. of AuCl3. With increasing concentration of the ligand, the polynuclear structure disappears and complexes with sharply increasing stability consts. are formed. IR spectroscopy was used to study the structures of the complexes and of their solns. and the parameters are tabulated for 300 and 77 K, together with heats of reaction. From the combined results, the stability of this type of complexes is determined by 3 types of interactions: σ-donor, π-dative and ion-coordinating.

CC 68-3 (Phase Equilibriums, Chemical Equilibriums, and Solutions)
Section cross-reference(s): 73
ST pyridinomethylene siloxane complex **gold** palladium platinum; **gold** pyridinomethylene siloxane complex stability structure; palladium pyridinomethylene siloxane complex stability structure; platinum pyridinomethylene siloxane complex stability structure
IT Infrared spectra
(in determination of structures of **gold** and palladium and platinum complexes with pyridinomethylene siloxanes)
IT 7440-05-3D, Palladium, bis(pyridinomethylene)disiloxane complexes
7440-06-4D, Platinum, bis(pyridinomethylene)disiloxane complexes
7440-57-5D, **Gold**, bis(pyridinomethylene)disiloxane complexes
RL: PRP (Properties)
(formation consts. and structure of)
IT **82629-58-1D**, **gold** or palladium or platinum complexes
**82629-60-5D**, **gold** or palladium or platinum complexes
RL: PRP (Properties)
(formation consts. and structures of)
IT **82629-58-1D**, **gold** or palladium or platinum complexes
**82629-60-5D**, **gold** or palladium or platinum complexes
RL: PRP (Properties)
(formation consts. and structures of)
RN 82629-58-1 HCAPLUS
CN Pyridinium, 1,1'-[(tetramethyl-1,3-disiloxanediyl)bis(methylene)]bis-, dichloride (9CI) (CA INDEX NAME)



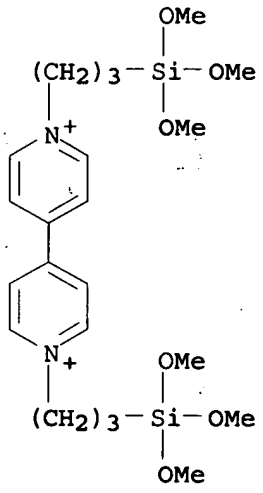

●2 Cl⁻

RN 82629-60-5 HCAPLUS
CN Pyridinium, (1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis(methylide) (9CI) (CA INDEX NAME)



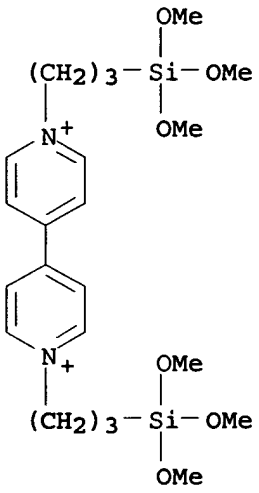
L51 ANSWER 16 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1993:55524 HCAPLUS
DN 118:55524
TI Regeneration of functional hemoglobin from iron(III) hemoglobin by reduction with hydrogen and a heterogeneous catalyst
AU McGown, Evelyn L.; Dill, Kilian; O'Connor, Richard J.; Khan, Mazhar; LeTellier, Yvonne C.; Vandegriff, Kim D.
CS Blood Res. Div., Letterman Army Inst. Res., Presidio of San Francisco, CA, 94129, USA
SO Analytical Biochemistry (1992), 207(1), 85-9
CODEN: ANBCA2; ISSN: 0003-2697
DT Journal
LA English
AB Functional Hb was regenerated from partially autoxidized Hb by reduction with mol. hydrogen in the presence of a heterogeneous catalyst consisting of elemental platinum embedded in an electroactive polymer. The visible spectrum of the regenerated Hb was identical to that of native iron(II) Hb. The regenerated Hb displayed highly cooperative oxygen-binding characteristics. P50 values for oxidized-regenerated Hb samples were not different from native Hb. The Hill coeffs. for regenerated Hb were slightly lower than the controls, possibly because of small amts. of irreversibly oxidized Hb arising during the initial autoxidn. The advantages of the reduction system include: (1) the heterogeneous catalyst avoids the problem of protein adsorption onto bare platinum, (2) catalyst and reducing agent are easily removed from the protein, and (3) the byproduct H+ is buffered easily.
CC **9-16** (**Biochemical** Methods)
Section cross-reference(s): **6**
ST Hb regeneration hydrogen heterogeneous catalyst
IT Reduction
(of metHb)
IT Reduction catalysts
(platinum complex as, for Hb regeneration)
IT Hemoglobins, met-
RL: RCT (Reactant); RACT (Reactant or reagent)
(reduction of, with hydrogen and heterogeneous catalyst for Hb regeneration)
IT Hemoglobins
RL: PROC (Process)
(regeneration of, by metHb reduction with hydrogen and heterogeneous catalyst)
IT 13965-91-8
RL: ANST (Analytical study)
(complexation of)
IT 1333-74-0, Hydrogen, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(metHb reduction by, using heterogeneous catalyst)

IT 7440-06-4DP, Platinum, bipyridine-hexanediamine complex
**74173-49-2DP**, platinum-hexanediamine complex 145365-78-2DP, platinum-bipyridine complex
RL: PREP (Preparation)
(preparation and metHb reduction with)
IT **74173-49-2P** 145365-78-2P
RL: PREP (Preparation)
(preparation and platinum complexation with)
IT 51826-90-5P, 1-Bromo-3-trimethoxysilylpropane
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and reaction with bipyridine and tetramethylhexanediamine)
IT 149-73-5, Trimethoxymethane
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with bromopropyltrichlorosilane)
IT 111-18-2, N,N,N',N'-Tetramethyl-1,6-hexanediamine 553-26-4, 4,4'-Bipyridine
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with bromotrimethoxysilylpropane)
IT 13883-39-1, 3-Bromopropyltrichlorosilane
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with trimethoxymethane)
IT **74173-49-2DP**, platinum-hexanediamine complex
RL: PREP (Preparation)
(preparation and metHb reduction with)
RN 74173-49-2 HCAPLUS
CN 4,4'-Bipyridinium, 1,1'-bis[3-(trimethoxysilyl)propyl]-, dibromide (9CI) (CA INDEX NAME)



●2 $Br^-$

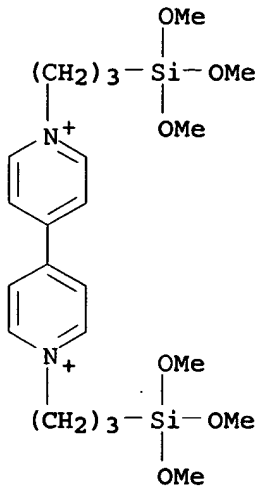
IT **74173-49-2P**
RL: PREP (Preparation)
(preparation and platinum complexation with)
RN 74173-49-2 HCAPLUS
CN 4,4'-Bipyridinium, 1,1'-bis[3-(trimethoxysilyl)propyl]-, dibromide (9CI) (CA INDEX NAME)



●2 $Br^-$

L51 ANSWER 17 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1990:540709 HCAPLUS
DN 113:140709
TI Scanning electrochemical microscopy. Application to polymer and thin metal oxide films
AU Lee, Chongmok; Bard, Allen J.
CS Dep. Chem., Univ. Texas, Austin, TX, 78712, USA
SO Analytical Chemistry (1990), 62(18), 1906-13
CODEN: ANCHAM; ISSN: 0003-2700
DT Journal
LA English
AB Scanning electrochem. microscopy (SECM) in the feedback mode, where the steady-state faradaic current at a microdisk electrode tip is measured as the tip is scanned close to a surface, was used to investigate several different polymer films on electrode surfaces: poly(vinylferrocene), N,N'-bis[3-(trimethoxysilyl)propyl]-4,4'-bipyridinium dibromide, and Nafion containing Os(bpy)32+. The tip response (i.e., pos. or neg. feedback) depends upon the nature of the polymer, the substrate electrode potential, the identity of the solution redox species, and the tip potential. Studies carried out with polymer films on interdigitated array (IDA) electrodes with different redox species in the cell solution demonstrate that the SECM images can be used to distinguish chemical different sites on a substrate surface. It was also possible with similar methods to distinguish **Au** and oxide-covered Cr electrodes in an IDA.
CC 72-2 (Electrochemistry)
Section cross-reference(s): 36, 66
ST scanning electrochem microscopy polymer microelectrode; polyvinylferrocene polymer microscopy; methoxysilylpropylbipyridinium bromide polymer; Nafion osmium bipyridine complex redox; **gold** oxide chromium electrode microscopy
IT Polymers, properties
RL: PRP (Properties)
(electrochem. scanning microscopy of electrodes modified with)

IT Electrodes
(polymer-modified, electrochem. scanning microscopy of)
IT Redox reaction
(electrochem., of couple on electrodes modified with polymers in electrochem. scanning microscopy)
IT Microscopy
(electrochem., scanning, on polymer-modified electrodes)
IT Electrodes
(interdigitated, electrochem. scanning microscopy of)
IT 13408-62-3 15158-62-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(electrochem. redox reaction of, on electrode modified with polymer, in scanning electrochem. microscopy)
IT 1910-42-5, Methyl viologen 18943-33-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(electrochem. redox reaction of, on electrodes modified with polymer, in scanning electrochem. microscopy)
IT 13408-63-4, Ferrocyanide
RL: RCT (Reactant); RACT (Reactant or reagent)
(electrochem. redox reaction of, on **gold**-chromium interdigitated electrodes, in scanning electrochem. microscopy)
IT 23648-06-8
RL: PRP (Properties)
(electrochem. scanning microscopy of electrode modified with Nafion containing)
IT 75-05-8, Acetonitrile, properties
RL: PRP (Properties)
(electrochem. scanning microscopy of polymers on metal oxide electrodes in solution of)
IT 66796-30-3, Nafion 117
RL: PRP (Properties)
(electrochem. scanning microscopy on electrode modified with, and containing bipyridine-osmium complex)
IT 7440-06-4, Platinum, uses and miscellaneous
RL: USES (Uses)
(electrode, polymer-modified, electrochem. scanning microscopy of)
IT 7440-57-5, **Gold**, uses and miscellaneous
RL: USES (Uses)
(interdigitated electrode containing chromium and, electrochem. scanning microscopy of)
IT 7440-47-3, Chromium, uses and miscellaneous
RL: USES (Uses)
(interdigitated electrode containing **gold** and, electrochem. scanning microscopy of)
IT 34801-99-5, Polyvinylferrocene **74173-49-2**, N,N'-Bis(3-(trimethoxysilyl)propyl)-4,4'-bipyridinium dibromide
RL: PRP (Properties)
(platinum electrode modified with, electrochem. scanning microscopy of)
IT **74173-49-2**, N,N'-Bis(3-(trimethoxysilyl)propyl)-4,4'-bipyridinium dibromide
RL: PRP (Properties)
(platinum electrode modified with, electrochem. scanning microscopy of)
RN 74173-49-2 HCAPLUS
CN 4,4'-Bipyridinium, 1,1'-bis[3-(trimethoxysilyl)propyl]-, dibromide (9CI) (CA INDEX NAME)



●2 Br⁻

L51 ANSWER 18 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1989:103786 HCAPLUS
DN 110:103786
TI The pH-dependent charge trapping by quinones electrostatically bound in an electrode-confined benzylviologen polymer
AU Hable, Christopher T.; Crooks, Richard M.; Wrighton, Mark S.
CS Dep. Chem., Massachusetts Inst. Technol., Cambridge, MA, 02139, USA
SO Journal of Physical Chemistry (1989), 93(4), 1190-2
CODEN: JPCHAX; ISSN: 0022-3654
DT Journal
LA English
AB Anthraquinone-2,6-disulfonate, 2,6-AQ, and anthraquinone-2-sulfonate, 2-AQ, were electrostatically bound in an electrode-confined N,N'-bis[p-(trimethoxysilyl)benzyl]-4,4'-bipyridinium-based polymer, (BPQ2+/+)n. Under all conditions in aqueous electrolyte the charge transport via the quinone redox system, AQ/AQH2, is too slow to allow direct access to all quinone centers in the polymer. Generally, all quinone centers are electrode accessible only via the BPQ2+/+ redox mediator. At pH 6.5 the electrochem. of [(BPQ2+)n.(AQ)m]surf is approx. the superposition of the AQ solution electrochem. and the electrochem. of surface-confined (BPQ2+/+)n examined sep. At pH 1.0 the reduction potential of AQ shifts pos. and (BPQ2+/+)n can only mediate the reduction of AQ to the 2e-/2H+ reduced form, AQH2, since the oxidation of AQH2 by BPQ2+ is thermodynamically uphill. Therefore, the charge associated with the reduced quinone, AQH2, remains trapped in analogy to previous reports of charge trapping in bilayer systems. The trapped charge is released from the [(BPQ2+)n.(AQ)m]surf system by a sudden increase in pH which changes the thermodn. to allow oxidation of the AQH2 by the BPQ2+.
CC 72-2 (Electrochemistry)
Section cross-reference(s): 22, 25, 36
ST anthraquinone sulfonate electrode modification; bipyridinium deriv polymer electrode modification; redox reaction electrochem quinone moiety; mediator polymer oxidn redn anthraquinone; charge trapping polymer pH
IT Reduction, electrochemical

(of anthraquinone-sulfonate, on electrode modified with polymer form from trimethoxysilyl-benzyl-dipyridinium)

IT Oxidation, electrochemical
(of hydroanthraquinone-sulfonate, on electrode modified with trimethoxysilylbenzyldipyridinium-based polymer)

IT Hydrolysis
(of trimethoxysilyl-benzyl-dipyridinium chloride, polymer formation in, redox reactions of anthraquinone in relation to)

IT Electrodes
(chemical modified, by polymer formed in hydrolysis of trimethoxysilyl-benzyl-dipyridinium)

IT Redox reaction
(electrochem., of anthraquinone-sulfonate, on electrode modified with polymer form from trimethoxysilyl-benzyl-dipyridinium)

IT Energy level
(electronic, of quinone and viologen moieties, electrochem. reactions on electrode modified with trimethoxysilyl-benzyl-dipyridinium in relation to)

IT 7440-44-0, Carbon, uses and miscellaneous 7440-57-5, **Gold**, uses and miscellaneous 50926-11-9, Indium tin oxide
RL: USES (Uses)
(electrode, modified with polymer based on trimethoxysilylbenzyldipyridinium, anthraquinone-sulfonate redox reactions in relation to)

IT **87698-68-8**
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrolysis of, polymer from, on electrode surface, anthraquinone-sulfonate redox reactions and trapping in relation to)

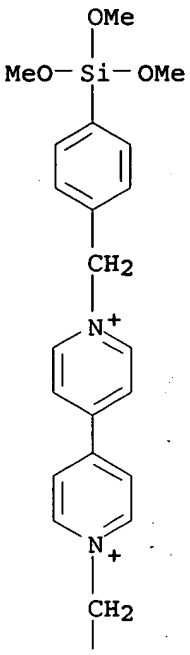
IT 84-48-0, Anthraquinone-2-sulfonate 84-50-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(redox reactions of, in dimethoxysilylbenzyldipyridinium polymer on electrode, charge trapping in relation to)

IT **87698-68-8**
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrolysis of, polymer from, on electrode surface, anthraquinone-sulfonate redox reactions and trapping in relation to)

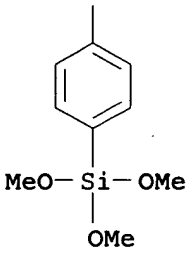
RN 87698-68-8 HCAPLUS

CN 4,4'-Bipyridinium, 1,1'-bis[[4-(trimethoxysilyl)phenyl]methyl]-, dichloride (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



●2 Cl⁻

L51 ANSWER 19 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1988:146409 HCAPLUS
DN 108:146409
TI Multicomponent redox catalysts for reduction of large biological molecules using molecular hydrogen as the reductant
AU Chao, Shuchi; Simon, Richard A.; Mallouk, Thomas E.; Wrighton, Mark S.
CS Dep. Chem., Massachusetts Inst. Technol., Cambridge, MA, 02139, USA
SO Journal of the American Chemical Society (1988), 110(7), 2270-6
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA English
AB One-electron reduction of the large biol. mols. horse heart cytochrome c,

sperm whale myoglobin, and horseradish peroxidase by using H2 as the reductant can be catalyzed by 2-component, high-surface-area heterogeneous catalysts. The catalysts can be prepared by first functionalizing high-surface-area SiO2 with a polycationic polymer into which is dispersed MCl42- (M = Pd, Pt). Reduction with H2 yields elemental Pd or Pt dispersed in the polymer. The particles are finally functionalized with a redox polymer derived from hydrolysis of Si(OR)3 groups of an N,N'-dialkyl-4,4'-bipyridinium- or from a cobalticenium-based monomer. The 2 components of the heterogeneous catalysts are the buried noble metal capable of activating the H2 and the redox polymer, which can equilibrate both with the noble metal and with the large biol. mol. Reduction of the large biol. mols. in aqueous solution can be effected at room temperature and 1 atm H2 by using the catalysts under conditions where the biol. materials would not be reducible with H2 alone or when the noble metal alone would be used as the catalyst.

CC **9-1** (**Biochemical** Methods)
Section cross-reference(s): **6**, 7, 34

ST protein redn hydrogen redox catalyst; enzyme redn catalyst; metal polymer catalyst protein redn

IT Redox reaction catalysts
Reduction catalysts
(heterogeneous multicomponent, for reduction of large biol. mols. with hydrogen)

IT Reduction
(of large biol. mols.)

IT Enzymes
Hemoproteins
Myoglobins
Proteins, reactions
RL: ANST (Analytical study)
(reduction, by hydrogen, multicomponent redox catalysts in)

IT 13965-91-8 14349-67-8 97551-35-4D, polymers **98517-02-3D**, polymers 112969-17-2D, polymers 7440-05-3, Palladium, uses and miscellaneous 7440-06-4, Platinum, uses and miscellaneous
RL: ANST (Analytical study)
(multicomponent redox catalyst containing, for protein reduction with hydrogen)

IT 1333-74-0, Hydrogen, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reduction by, of large biol. mols., multicomponent redox catalysts in)

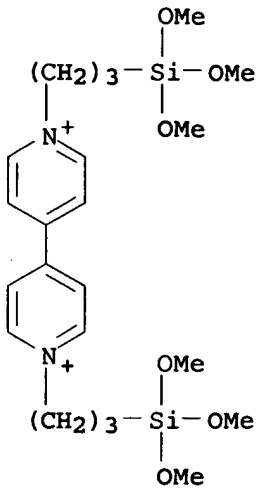
IT 9003-99-0, Peroxidase 9007-43-6, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reduction of, by hydrogen, multicomponent redox catalysts in)

IT 7631-86-9, Silicon dioxide, uses and miscellaneous
RL: USES (Uses)
(support, for redox catalyst for protein reduction with hydrogen)

IT **98517-02-3D**, polymers
RL: ANST (Analytical study)
(multicomponent redox catalyst containing, for protein reduction with hydrogen)

RN 98517-02-3 HCAPLUS

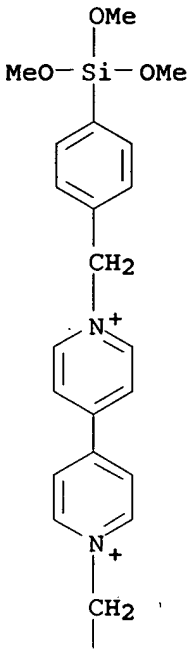
CN 4,4'-Bipyridinium, 1,1'-bis[3-(trimethoxysilyl)propyl]- (9CI) (CA INDEX NAME)



L51 ANSWER 20 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1987:607261 HCAPLUS
DN 107:207261
TI A two-terminal microelectrochemical diode with contact spacing of about 1 μm: a device based on one solution redox couple and one electrode-confined redox couple
AU Kittlesen, Gregg P.; Wrighton, Mark S.
CS Dep. Chem., Massachusetts Inst. Technol., Cambridge, MA, 02139, USA
SO Journal of Molecular Electronics (1986), 2(1), 23-33
CODEN: JMELE4; ISSN: 0748-7991
DT Journal
LA English
AB A microelectrochem. diode was made of 2 identical, adjacent platinized Au microelectrodes of an 8-electrode microelectrode array with a redox polymer, [(BPQ2+/+)n] derived from an N,N'-dibenzyl-4,4'-bipyridinium monomer. The array is fabricated on a Si3N4 surface chemical deposited on a Si/SiO2 substrate using conventional microfabrication procedures. The diode behavior was examined in aqueous electrolyte solution containing the Ru(NH3)63+/2+. The rectifying behavior was obtained, because a microelectrode modified with polymer is capable of reducing the oxidized form of the redox couple [Ru(NH3)6]3+, but is incapable of oxidizing the reduced form of the redox couple [Ru(NH3)6]2+. The mol.-based diodes were prepared and their properties such as threshold voltage can be altered by variation in the mol. materials.
CC 72-2 (Electrochemistry)
Section cross-reference(s): 76
ST microelectrode array polymer diode; rectifying property ruthenium complex; electroredn redox couple polymer electrooxidn; polymer electroredn redox couple electrooxidn; threshold voltage diode polymer change
IT Siloxanes and Silicones, uses and miscellaneous
RL: USES (Uses)
(benzylbipyridinium group-containing, microelectrode coated with, rectifying properties in relation to)
IT Electric rectifiers
(microelectrode, polymer-coated)
IT Hydrolysis
(of bis[(trimethoxysilyl)benzyl]bipyridinium, microelectrode coated with polysiloxane from)
IT Oxidation, electrochemical

Reduction, electrochemical
(of ruthenium complexes, on electrode coated with a polymer, rectifying properties in relation to)
IT Permeability and Permeation
(of ruthenium complexes, through polymer, rectifying properties in relation to)
IT Polymerization
(electrochem., of dibenzylbipyridinium, on platinized **gold**, rectifying properties in relation to)
IT Redox reaction
(electrochem., of ruthenium complexes, on electrode coated with a polymer, rectifying properties in relation to)
IT Electrodes
(micro-, polymer-coated)
IT 7440-06-4, Platinum, uses and miscellaneous
RL: USES (Uses)
(electrode, platinized on **gold**, coated with polymer, ruthenium redox reaction on, rectifying properties in relation to)
IT **87698-68-8**
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrolysis of, rectifying properties in relation to)
IT 12033-89-5, Silicon nitride (Si3N4), uses and miscellaneous
RL: USES (Uses)
(microelectrode array on silicon coated with silica and)
IT 7631-86-9, Silica, uses and miscellaneous
RL: USES (Uses)
(microelectrode array on silicon coated with silicon nitride and)
IT 7440-21-3, Silicon, uses and miscellaneous
RL: USES (Uses)
(microelectrode array on substrate of, coated with silica and silicon nitride)
IT 7440-57-5, **Gold**, uses and miscellaneous
RL: USES (Uses)
(microelectrode, platinized, coated with polymer, ruthenium redox reaction on, rectifying properties in relation to)
IT 19052-44-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidation of, electrochem., on microelectrode coated with polymer, rectifying properties in relation to)
IT 18943-33-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(reduction of, electrochem., on microelectrode coated with polymer, rectifying properties in relation to)
IT 7447-40-7, Potassium chloride, uses and miscellaneous
RL: USES (Uses)
(ruthenium redox reaction on microelectrode coated with polymer in solution containing, rectifying properties in relation to)
IT **87698-68-8**
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrolysis of, rectifying properties in relation to)
RN 87698-68-8 HCAPLUS
CN 4,4'-Bipyridinium, 1,1'-bis[[4-(trimethoxysilyl)phenyl]methyl]-, dichloride (9CI) (CA INDEX NAME)

PAGE 1-A



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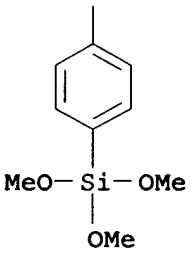


●2 Cl⁻

L51 ANSWER 21 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1987:529800 HCAPLUS
DN 107:129800
TI High surface area catalysts for hydrogen reduction of an enzyme. Reduction of NAD+ to NADH
AU Chao, Shuchi; Wrighton, Mark S.
CS Dep. Chem., Massachusetts Inst. Technol., Cambridge, MA, 02139, USA
SO Journal of the American Chemical Society (1987), 109(19), 5886-8
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA English
AB High surface area SiO2 can be modified with a polymer, (PQ2+)n, derived

from an N,N'-dialkyl-4,4'-bipyridinium (viologen) reagent. The resulting [SiO2]-(PQ2+)n can come into charge-transfer equilibrium with enzymes when suspended in an aqueous solution (pH = 8). Reduction of [SiO2]-(PQ2+)n to [SiO2]-(PQ+)n can be effected with (1) HCO2- (using formate dehydrogenase) or (2) the coenzyme NADH (using lipoamide dehydrogenase). Reduction of the bound polymer is established by the change in color of the suspended material from off-white, [SiO2]-(PQ2+)n to blue-violet, [SiO2]-(PQ+)n. The results establish that the enzymes used will equilibrate with the surface-bound viologen mediator, because the HCO2- and NADH do not reduce the bound PQ2+ in the absence of enzyme. [SiO2]-(PQ2+·2Br-)n can be impregnated with Pt(0) by 1st exchanging the Br- with PtCl42- followed by reduction with H2. The resulting synthetic hydrogenase, [SiO2]-(PQ2+·xPt)n, will equilibrate with the H2O/H2 redox couple; i.e., H2 can be used to effect reduction of bound PQ2+ to PQ+ which in turn can be used to effect reduction of NAD to (enzymically active) NADH using lipoamide dehydrogenase as the primary acceptor of reducing equivs. from surface-bound PQ+. The net result is that H2 can be used to regenerate NADH from NAD.

CC **7-3** (Enzymes)

ST NAD redn synthetic hydrogenase platinum catalyst; dehydrogenase formate lipoamide NAD redn polymer; hydrogen NAD redn platinum catalyst

IT **110319-88-5D**, reaction products with silica and PtCl4
RL: PROC (Process)
(enzymic formation of)

IT 7631-86-9D, reaction products with viologen polymer
RL: RCT (Reactant); RACT (Reactant or reagent)
(enzymic reduction of)

IT 58-68-4, NADH
RL: FORM (Formation, nonpreparative)
(formation of, from NAD by hydrogen, in presence of synthetic hydrogenase)

IT 9001-18-7, Lipoamide dehydrogenase 9028-85-7, Formate dehydrogenase
RL: BIOL (Biological study)
(in silica-polymer complex reduction)

IT 9027-05-8, Hydrogenase
RL: PRP (Properties)
(model for, NAD reduction by hydrogen in presence of)

IT 7440-06-4DP, complexes with silica-viologen polymer
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and use as synthetic hydrogenase in NAD reduction by hydrogen)

IT 1333-74-0, Hydrogen, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with NAD in presence of synthetic hydrogenase)

IT 53-84-9, NAD
RL: RCT (Reactant); RACT (Reactant or reagent)
(reduction of, by hydrogen, in presence of synthetic hydrogenase)

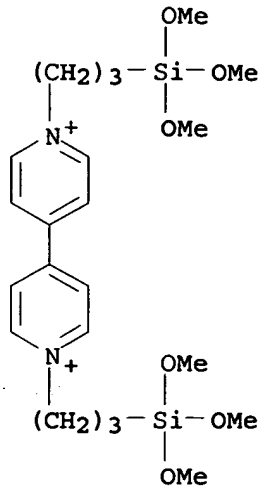
IT **110319-88-5D**, reaction products with silica and PtCl4
RL: PROC (Process)
(enzymic formation of)

RN 110319-88-5 HCAPLUS

CN 4,4'-Bipyridinium, 1,1'-bis[3-(trimethoxysilyl)propyl]-, dibromide, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 74173-49-2
CMF C22 H38 N2 O6 Si2 . 2 Br



●2 $Br^-$

L51 ANSWER 22 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1987:507260 HCAPLUS
DN 107:107260
TI Preparation and characterization of molecule-based transistors with a 50-nanometer source-drain separation with use of shadow deposition techniques. Toward faster, more sensitive molecule-based devices
AU Jones, E. Tracy Turner; Chyan, Oliver M.; Wrighton, Mark S.
CS Dep. Chem., Massachusetts Inst. Technol., Cambridge, MA, 02139, USA
SO Journal of the American Chemical Society (1987), 109(18), 5526-8
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA English
AB Preparation of **Au** microelectrode arrays having spacings of 50-100 nm and available electrode areas of <10-7 cm2 is described. The dimensions are qual. smaller than previously reported and lead directly to faster switching and smaller switching energy for mol.-based transistors. Such microelectrodes can be functionalized with redox active polymers by oxidation of aniline to give polyaniline or by electrochem. assisted deposition of N,N'-bis(p-trimethoxysilylbenzyl)-4,4'-bipyridinium promoting Si-OMe hydrolysis to give the redox polymer (BPQ2+/+)n. The fabrication procedure begins with a microelectrode array consisting of 8, individually addressable **Au** microelectrodes each .apprx.50 μm long + .apprx.2.5 μm wide + .apprx.0.1 μm thick with a spacing of .apprx.1.5 μm between the microelectrodes. A line of sight e-beam deposition of .apprx.50 nm of **Au** at a given angle, using the 0.1 μm thick microelectrodes to cast a shadow, can be used to close the spacing between microelectrodes to .apprx.50 nm. A 2nd line of sight deposition process at a slightly different angle, coats all but a small fraction of the **Au** with .apprx.100 nm of insulating SiO2 to give ultrasmall **Au** electrode areas. Mol.-based transistors using polyaniline or (BPQ2+/+)n as the channel material and a pair of microelectrodes as source and drain show that superior speed and sensitivity are the result of the ultrasmall electrode spacings and areas. The dimensions of the channel and the characteristics of the device are

consistent with an amount of redox polymer corresponding to .apprx.10-14 mol of monomer, a factor of 102 less than used in previously reported mol.-based devices. The devices respond to a small fraction of a femtomole of e-'s (10-10 C).

CC 76-3 (Electric Phenomena)

ST mol based transistor prepn; polyaniline based transistor prepn; bipyridinium polymer based transistor prepn; **gold** microelectrode mol transistor; silica insulator mol based transistor; silicon mol based transistor

IT Transistors
(mol.-based, shadow deposition preparation and elec. characteristics of)

IT 7631-86-9, uses and miscellaneous
RL: TEM (Technical or engineered material use); USES (Uses)
(elec. insulating layer of, in mol.-based transistors)

IT 7440-57-5P, uses and miscellaneous
RL: PREP (Preparation)
(microelectrode arrays of, shadow deposition preparation of, for mol.-based transistors)

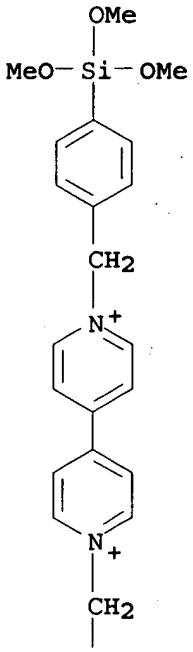
IT 25233-30-1, Polyaniline **102342-08-5**
RL: USES (Uses)
(transistors containing, shadow deposition preparation and elec. characteristics of)

IT **102342-08-5**
RL: USES (Uses)
(transistors containing, shadow deposition preparation and elec. characteristics of)

RN 102342-08-5 HCAPLUS

CN 4,4'-Bipyridinium, 1,1'-bis[[4-(trimethoxysilyl)phenyl]methyl]- (9CI) (CA INDEX NAME)

PAGE 1-A



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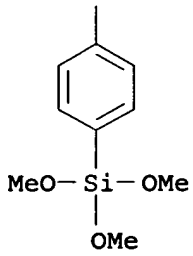
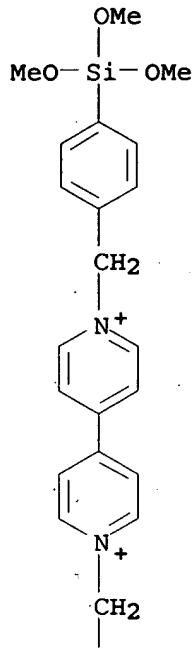



L51 ANSWER 23 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1985:623075 HCAPLUS
DN 103:223075
TI A microelectrochemical diode with submicron contact spacing based on the connection of two microelectrodes using dissimilar redox polymers
AU Kittlesen, Gregg P.; White, Henry S.; Wrighton, Mark S.
CS Dep. Chem., Massachusetts Inst. Technol., Cambridge, MA, 02139, USA
SO Journal of the American Chemical Society (1985), 107(25), 7373-80
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA English
AB Closely spaced, 0.2-1-μm, **Au** microelectrodes (50 μm long, 1-2 μm wide, and 0.1 μm thick) on Si3N4 can be functionalized with poly(vinylferrocene), PVFc+/0, or with an N,N'-dibenzyl-4,4'-bipyridinium-based polymer, (BPQ2+/+)n,derived from hydrolysis of N,N'-bis[(p-trimethoxysilyl)benzyl]-4,4'-bipyridinium (I). Two- or 8-microelectrode arrays were functionalized with PVFc+/0 or (BPQ2+/+)n. Adjacent microelectrodes can be connected with either polymer in the sense that net current can pass from 1 microelectrode to another, through the polymer, when 1 electrode is held at a potential where the polymer is oxidized and the other electrode is held at a potential where the polymer is reduced. From such steady-state current an estimate of the diffusion coefficient for charge transport (DCT) in the polymer can be made; values in the range 10-9-10-10 cm2/s are found and accord well with earlier measurements of DCT for the polymers studied. A 2-terminal diode can be fabricated by coating 1 electrode with (BPQ2+/+)n and an adjacent electrode with PVFc+/0 such that there is a connection between the microelectrodes via the (BPQ2+/+)n/PVFc+/0 contact. Current passes when the applied potential is such that the neg. lead is attached to the (BPQ2+/+)n-coated electrode and the pos. lead is attached to the PVFc+/0-coated electrode. When the applied potential approaches the difference in the E°''s of the 2 polymers, current flows with the crucial feature being a downhill (by .apprx.0.9 V) cross redox reaction at the (BPQ2+/+)n/PVFc+/0 interface, BPQ+ + Fc+ → BPQ2+ + Fc0. Current does not flow between the microelectrodes when the applied potential is in the opposite sense, because the reaction BPQ2+ + Fc0 → BPQ+ + Fc+ is uphill by .apprx.0.9 V. The switching time of a microelectrochem. diode is controlled by the time required to oxidize and reduce the polymers.
CC 72-2 (Electrochemistry)
Section cross-reference(s): 76
ST diode microelectrochem dissimilar redox polymer; siloxane bipyridinium redox polymer diode; polyvinylferrocene redox polymer diode; **gold** microelectrode redox polymer diode
IT Redox reaction
(at poly(vinylferrocene)/poly(vinylferrocenium) interface with benzylpyridinium group-containing siloxane couple, diode in relation to)

IT Ionomers
RL: USES (Uses)
(benzylbipyridinium group-containing siloxanes, in electrochem. diode with redox polymer with poly(vinylferrocene))
IT Siloxanes and Silicones, uses and miscellaneous
RL: USES (Uses)
(benzylbipyridinium group-containing, redox polymer, in electrochem. diode with poly(vinylferrocene) redox polymer)
IT Electron, conduction
(diffusion of, in redox polymers, electrochem. diode in relation to)
IT Diodes
(microelectrochem., with two microelectrodes with different redox polymers, submicron contact spacing based on connection of)
IT Hydrolysis
(of bis[(trimethoxysilyl)benzyl]bipyridinium in functionalization of **gold** microelectrode for electrochem. diode)
IT Redox reaction
(electrochem., of poly(vinylferrocene) and benzylbipyridinium group-containing siloxanes, diode in relation to)
IT 7791-03-9
RL: PRP (Properties)
(cyclic voltammetry at adjacent microelectrodes in solution containing, electrochem. diode in relation to)
IT 18943-33-4 19052-44-9
RL: PRP (Properties)
(electrochem. diode containing, with redox polymer)
IT 7440-06-4, uses and miscellaneous
RL: USES (Uses)
(**gold** microelectrode electroplated with, for electrochem. diode with different redox polymers)
IT 12033-89-5, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(**gold** microelectrodes on, in electrochem. diode with different redox polymers)
IT **87698-68-8**
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrolysis of, in functionalization of **gold** microelectrodes for electrochem. diode)
IT 13096-46-3D, siloxanes containing
RL: PRP (Properties)
(microelectrochem. diode with different redox polymers containing)
IT 7440-57-5, uses and miscellaneous
RL: USES (Uses)
(microelectrode, electroplated with platinum, for electrochem. diode with different redox polymers)
IT 1923-70-2
RL: PRP (Properties)
(polyvinylferrocene redox polymer in acetonitrile containing, charge transfer diffusion coefficient in relation to)
IT 34801-99-5
RL: PRP (Properties)
(redox polymer, in electrochem. diode with benzylbipyridinium group-containing siloxane)
IT 7447-41-8, uses and miscellaneous
RL: USES (Uses)
(response of microelectrodes to ruthenium-ammine complex in solution containing)
IT **87698-68-8**
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrolysis of, in functionalization of **gold** microelectrodes

for electrochem. diode)
RN 87698-68-8 HCAPLUS
CN 4,4'-Bipyridinium, 1,1'-bis[[4-(trimethoxysilyl)phenyl]methyl]-, dichloride (9CI) (CA INDEX NAME)

PAGE 1-A



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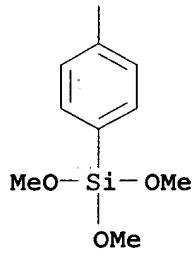


● 2 Cl⁻

L51 ANSWER 24 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1984:414040 HCAPLUS
DN 101:14040
TI Redox mediation and hydrogen-generation with bipyridinium reagents
IN Wrighton, Mark S.; Bookbinder, Dana C.; Bruce, James A.; Dominey, Raymond N.; Lewis, Nathan S.
PA Massachusetts Institute of Technology, USA

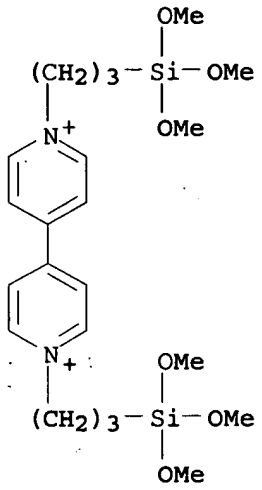
SO U.S., 8 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI US 4439302 | A | 19840327 | US 1981-324496 | 19811124 |
| PRAI US 1981-324496 | | 19811124 | | |

AB Bipyridinium and similar compds. were used with dispersed noble metals (Pt) to coat electrodes useful for H production and for reducing biolog. materials. Thus, a redox mediating agent that allows the use of H as a reductant for the 1-electron reduction of cytochrome c, myoglobin or stellacyanins was based on 1,1'-bis[3-(trimethoxysilyl)propyl]-4,4'-bipyridinium dibromide (I) prepared from 4,4'-bipyridine and 1-bromo-3-trimethoxysilylpropane. Pyrex glass test tubes were treated with 10M NaOH and derivatized with I and platinized with aqueous K2PtCl4 and exposed to H to reduce the PtCl42- to Pt(0) which then equilibrated the H2O/H with the redox centers of the hydrolyzed I. Oxidation with HCl and rinsing with distilled H2O completed the process.

IC C25F007-00
INCL 204290000R
CC 72-2 (Electrochemistry)
Section cross-reference(s): 6
ST bipyridinium silyl catalyst modification electrode; biolog material redn derivatized cathode; hydrogen prodn modified catalytic cathode
IT Reduction catalysts
(noble transition metals, on cathodes derivatized with bipyridinium redox mediating agent)
IT Myoglobins
Stellacyanins
RL: RCT (Reactant); RACT (Reactant or reagent)
(reduction of, on cathodes derivatized with bipyridinium redox mediating agent)
IT Transition metals, uses and miscellaneous
RL: USES (Uses)
(noble, electrodes modified with bipyridinium redox mediating agent and)
IT 7440-05-3, uses and miscellaneous 7440-06-4, uses and miscellaneous
7440-57-5, uses and miscellaneous
RL: USES (Uses)
(electrodes modified with bipyridinium redox mediating agent and)
IT 1303-00-0, uses and miscellaneous 7440-21-3, uses and miscellaneous
22398-80-7, uses and miscellaneous
RL: USES (Uses)
(electrodes, derivatized with bipyridinium redox mediating agent)
IT 1333-74-0P, preparation
RL: PREP (Preparation)
(generation of, bipyrimidinium redox mediation agent in)
IT 51826-90-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with bipyridine, redox mediation agent from)
IT 553-26-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with bromotrimethoxysilylpropane, redox mediation agent from)
IT 9007-43-6, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reduction of, on cathodes derivatized with bipyridinium redox mediating agent)

IT **74173-49-2**
RL: PRP (Properties)
(redox mediating agent, electrode modified with)
IT **74173-49-2**
RL: PRP (Properties)
(redox mediating agent, electrode modified with)
RN 74173-49-2 HCAPLUS
CN 4,4'-Bipyridinium, 1,1'-bis[3-(trimethoxysilyl)propyl]-, dibromide (9CI) (CA INDEX NAME)



●2 Br⁻

L51 ANSWER 25 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1982:413867 HCAPLUS
DN 97:13867
TI Viologen homopolymer, polymer mixture and polymer bilayer films on electrodes. Electropolymerization, electrolysis, spectroelectrochemistry, trace analysis and photoreduction
AU Willman, K. W.; Murray, Royce W.
CS Kenan Lab. Chem., Univ. North Carolina, Chapel Hill, NC, 27514, USA
SO Journal of Electroanalytical Chemistry and Interfacial Electrochemistry (1982), 133(2), 211-31
CODEN: JEIEBC; ISSN: 0022-0728
DT Journal
LA English
AB Two new viologen polymers are described and formed in films on Pt, **Au**, C and SnO2 electrodes. One polymer is based upon condensation of the organosilane monomer, N-methyl-N'-[4-[2-(trimethoxysilyl)-ethyl]benzyl]-4,4'-bipyridinium (BVSi2+); the other upon the electropolymn. of the monomer 4-vinyl-4'-methyl-N,N'-ethylene-2,2'-bipyridinium (VDQ2+). Electrochem. properties of thin films of these polymers on electrodes are superior to films prepared from the monomer N,N'-bis[4-[2-(trimethoxysilyl)ethyl]benzyl]-4,4'-bipyridinium. Spectroelectrochem. studies of films on SnO2 are used to illustrate optical and color changes accompanying electrode reactions, to demonstrate the extent of reactivity and to estimate the rate of charge transport in the

film. Polymer mixts. of VDQ2+ with [Ru(vbpy)32+] (vbpy = 4-vinyl-4'-methyl-2,2'-bipyridine) can be prepared by simultaneous electropolymn.; sequential polymerization provides spatially segregated bilayers of these polymers, with consequent charge trapping properties. The charge-trapping properties of the bilayer electrodes are applied to the determination of trace dioxygen and to the accumulation of photoreduced viologen. Films of poly-VDQ2+ and poly-BVSi2+ can be used to catalyze the reduction of dibromodiphenylethane.

CC 72-2 (Electrochemistry)
Section cross-reference(s): 22, 35, 74, 79

ST viologen polymer film electrode; ruthenium complex viologen polymer electrode; electropolymn viologen siloxane ruthenium complex; analysis viologen polymer film; photoredn viologen polymer

IT Siloxanes and Silicones, uses and miscellaneous
RL: USES (Uses)
(electrodes coated with viologen-containing, cyclic voltammetry of)

IT Reduction, electrochemical
(of viologen polymers and ruthenium-vinyl Me bipyridine complex polymer on electrodes)

IT Reduction, photochemical
(of viologen siloxane polymer film bilayer)

IT Voltammetry
(cyclic, at electrodes with viologen homopolymer and polymer mixture and polymer bilayer films)

IT Redox reaction
(electrochem., of viologen homopolymer and polymer mixture and polymer bilayer films)

IT Reduction catalysts
(electrochem., platinum coated with vinyl methylethylene bipyridinium polymer, for dibromodiphenylethane)

IT Polymerization
(electrochem., reductive, of vinyl Me ethylene bipyridinium and ruthenium-vinyl Me bipyridine complex)

IT 7782-44-7, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination of, platinum electrode with viologen polymer and ruthenium vinyl Me bipyridine complex polymer bilayers for)

IT 75931-34-9
RL: PRP (Properties)
(electrode with outer layer of methyl[trimethoxysilylethyl]benzyl bipyridinium polymer and inner layer of, on tin oxide, photochem. trapping in relation to)

IT 7440-06-4, uses and miscellaneous
RL: USES (Uses)
(electrode, viologen polymer-coated, with and without ruthenium-vinyl Me bipyridine complex polymer)

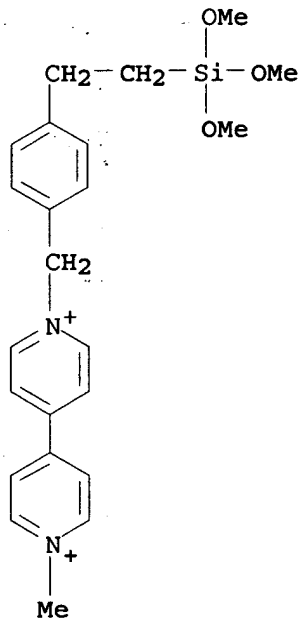
IT 12035-82-4D, hydrolyzed, reaction products with methyl[(trimethoxysilyl)ethyl]benzyl bipyridinium, polymeric
**78099-27-1 78099-27-1D**, reaction products with hydrolyzed platinum oxide, polymeric
RL: PRP (Properties)
(electrodes chemical modified with, cyclic voltammetry of)

IT 78099-26-0
RL: PRP (Properties)
(electrodes coated with, cyclic voltammetry of, with and without ruthenium-vinyl Me bipyridine complex polymer layer)

IT **82105-76-8**
RL: PRP (Properties)
(electrodes modified with films of)

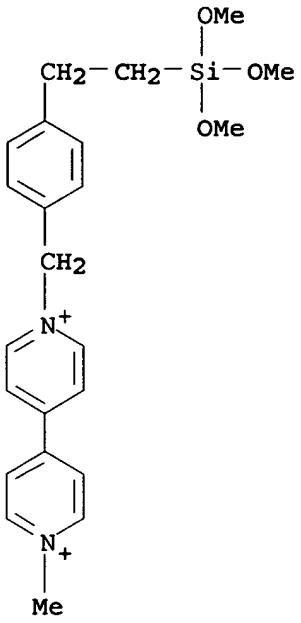
IT 7440-44-0, uses and miscellaneous

RL: USES (Uses)
(electrodes, glassy, viologen polymer-coated)
IT 75931-32-7
RL: PRP (Properties)
(electrodes, polymeric bilayer, with viologen polymers)
IT 7440-57-5, uses and miscellaneous
RL: USES (Uses)
(electrodes, viologen polymer-coated)
IT 18282-10-5
RL: PRP (Properties)
(electrodes, viologen polymer-coated)
IT 102-54-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidation of, electrochem., on platinum electrode coated with polymer)
IT 78099-25-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(polymerization of, electrochem. reductive, polymer film-coated electrodes from)
IT 75675-24-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(polymerization of, electroreductive, with and without viologens)
IT 5789-30-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(reduction of, electrocatalytic, on platinum and platinum coated with polymer)
IT **78099-27-1 78099-27-1D**, reaction products with hydrolyzed platinum oxide, polymeric
RL: PRP (Properties)
(electrodes chemical modified with, cyclic voltammetry of)
RN 78099-27-1 HCAPLUS
CN 4,4'-Bipyridinium, 1-methyl-1'-[[4-[2-(trimethoxysilyl)ethyl]phenyl]methyl]- (9CI) (CA INDEX NAME)



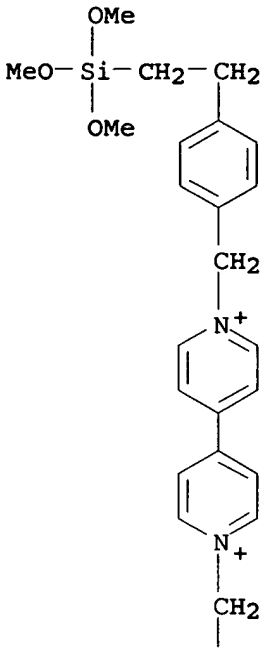
RN 78099-27-1 HCAPLUS
CN 4,4'-Bipyridinium, 1-methyl-1'-[[4-[2-(trimethoxysilyl)ethyl]phenyl]methyl

]- (9CI) (CA INDEX NAME)

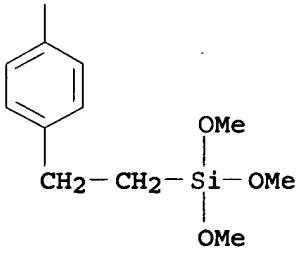


IT **82105-76-8**
RL: PRP (Properties)
(electrodes modified with films of)
RN 82105-76-8 HCAPLUS
CN 4,4'-Bipyridinium, 1,1'-bis[[4-[2-(trimethoxysilyl)ethyl]phenyl]methyl]-
(9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



L51 ANSWER 26 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1982:42994 HCAPLUS
DN 96:42994
TI Improvement of photoelectrochemical hydrogen generation by surface modification of p-type silicon semiconductor photocathodes
AU Dominey, Raymond N.; Lewis, Nathan S.; Bruce, James A.; Bookbinder, Dana C.; Wrighton, Mark S.
CS Dep. Chem., Massachusetts Inst. Technol., Cambridge, MA, 02139, USA
SO Journal of the American Chemical Society (1982), 104(2), 467-82
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA English
AB The improvement of H evolution from 2 different types of catalytic p-type photocathode surfaces was examined The p-type Si was platinized by photoelectrochem. plating of Pt onto the Si surface. Such a photocathode shows significant improvement (compared to naked p-type Si) for photochem.

H evolution with respect to output photovoltage, fill factor, and overall efficiency. Such photocathodes having an optimum amount of Pt give a pH-dependent output voltage with respect to the H2O/H2 couple, but the dependence is not a simple 59 mV per pH unit dependence. No pH dependence would be expected if Pt formed a Schottky barrier when plated onto p-type Si. A 2nd kind of H evolution catalyst was confined to the surface of p-type Si. Polymeric quantities of an electroactive N,N'-dialkyl-4,4'-bipyridinium reagent, (PQ2+/+.)n, was confined to the surface. The Br- counterions of the polymer are then exchanged by PtCl62-. Photoredn. then yields Pt dispersed in the polymer. Such a surface is again significantly improved compared to naked p-type Si with respect to H evolution. A comparison of the naked p-Si, the simply platinized, and the [(PQ2+/+.)n·nPt]surface system is made and contrasted to the expected behavior of an external Schottky barrier photocell driving an electrolytic cell with a Pt cathode. Expts. with n-type MoS2, n-type Si, Pt, **Au**, and W cathodes functionalized with the [(PQ2+/+.)n·nPt]surface system compared to the same surfaces directly platinized confirm an important difference in the mechanism of H evolution catalysis for the 2 surface catalyst systems. For the [(PQ2+/+.)n·Pt]surface system, there is an optimum pH for the catalysis, consistent with the pH-independent formal potential of the (PQ2+/+.)n system, -0.50 ± 0.05 V vs. SCE, relative to the formal potential of the (H2O/H2) couple that moves 59 mV per pH unit. Qual. expts. with insulating glass surface derivatized with [(PQ2+/+.)n·nPt]surface establish directly that the Pt is necessary, and sufficient, to equilibrate (PQ2+/+.)n with (H2O/H2). The p-type Si modified with optimum amts. of Pt by direct platinization appears to give improved H evolution efficiency by a mechanism where the Pt serves as a catalyst that does not alter the interface energetics of the semiconductor.

CC 72-4 (Electrochemistry)

ST photocathode hydrogen evolution platinum silicon; silicon photocathode hydrogen evolution platinum; platinum catalyst hydrogen photoelectrochem evolution; bipyridinium polymer platinum photoelectrochem catalyst; platinized silicon hydrogen evolution photocathode; cathode photoelectrochem silicon platinum catalyst

IT Redox reaction
(of bipyridinium polymer with incorporated platinum, for silicon photocathode for hydrogen evolution)

IT Reduction, electrochemical
Reduction, photochemical
(of platinum, on silicon and incorporated in bipyridinium polymers on silicon)

IT Cathodes
(photoelectrochem., platinized silicon and modified silicon)

IT Reduction catalysts
(photoelectrochem., platinum, for hydrogen evolution)

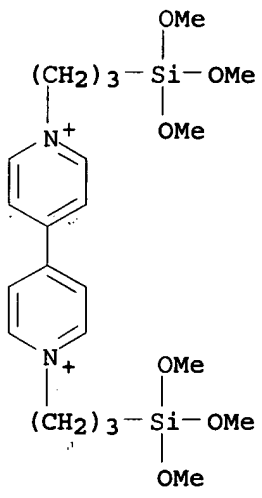
IT 7440-06-4, uses and miscellaneous
RL: CAT (Catalyst use); USES (Uses)
(catalysts, platinum and silicon bipyridinium polymer on silicon with incorporated platinum, for hydrogen photoelectrochem. evolution)

IT 1317-33-5, uses and miscellaneous 7440-57-5, uses and miscellaneous
RL: USES (Uses)
(electrodes, modified with bipyridinium compound, for hydrogen electrochem. evolution)

IT 1333-74-0P, preparation
RL: PREP (Preparation)
(evolution of, photoelectrochem., on platinized silicon and modified silicon)

IT 7440-21-3D, hydrolyzed, reaction products with hydrolyzed and polymerized

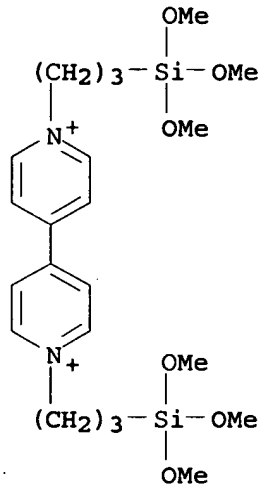
bis(trimethoxysilylpropyl)bipyridinium
RL: PRP (Properties)
(photocathode, with incorporated platinum, for hydrogen evolution)
IT **74173-49-2DP**, hydrolyzed and polymerized, reaction products with hydrolyzed silicon photoelectrode, with incorporated platinum, for hydrogen evolution
RL: PREP (Preparation)
(preparation of)
IT 553-26-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with 1-bromo-3-trimethoxysilanepropane)
IT 51826-90-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with 4,4'-bipyridine)
IT 16871-54-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(reduction of, photoelectrochem., in incorporation of platinum in bipyridinium polymer attached to silicon photocathode for hydrogen evolution)
IT **74173-49-2**
RL: PRP (Properties)
(silicon electrode modified with, with finely divided platinum, for photocathode for improved hydrogen evolution)
IT **74173-49-2DP**, hydrolyzed and polymerized, reaction products with hydrolyzed silicon photoelectrode, with incorporated platinum, for hydrogen evolution
RL: PREP (Preparation)
(preparation of)
RN 74173-49-2 HCAPLUS
CN 4,4'-Bipyridinium, 1,1'-bis[3-(trimethoxysilyl)propyl]-, dibromide (9CI) (CA INDEX NAME)



●2 $Br^-$

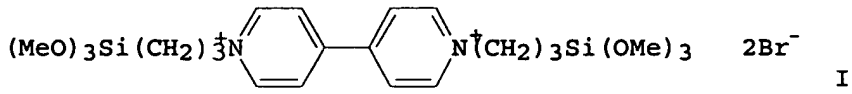
IT **74173-49-2**
RL: PRP (Properties)
(silicon electrode modified with, with finely divided platinum, for

photocathode for improved hydrogen evolution)
RN 74173-49-2 HCAPLUS
CN 4,4'-Bipyridinium, 1,1'-bis[3-(trimethoxysilyl)propyl]-, dibromide (9CI) (CA INDEX NAME)



2 $Br^-$

L51 ANSWER 27 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1982:16258 HCAPLUS
DN 96:16258
TI Heterogeneous one-electron reduction of metal-containing biological molecules using molecular hydrogen as the reductant: synthesis and use of a surface-confined viologen redox mediator that equilibrates with hydrogen
AU Bookbinder, Dana C.; Lewis, Nathan S.; Wrighton, Mark S.
CS Dep. Chem., Massachusetts Inst. Technol., Cambridge, MA, 02139, USA
SO Journal of the American Chemical Society (1981), 103(25), 7656-9
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA English
GI



I

@

AB Heterogeneous 1-electron reduction of horse heart ferricytochrome c (I), sperm whale myoglobin, and stellacyanin was achieved in H2O with H2 as the reducing agent and a surface confined polymeric N,N'-dialkyl-4,4'-bipyridinium redox mediator (II). Glass **substrates** coated with II have Br- as counterions which are then exchanged for PtCl42-. Reaction with H2 in H2O yields Pt(0) dispersed throughout the polymer. Electronic absorption spectra of the I-Pt(0) surface catalyst in the presence of H2 as a function of pH establishes directly that the Pt(0) is necessary to equilibrate II with H2O/H2. There is no reduction of the polymer or I when Pt(0) is not present. The formal potential of II is -0.26 vs. normal H electrode and is pH independent. A pH titration under 1 atm of H2 shows that II-Pt(0) is in the reduced form only when the potential of the H2O/H2 couple (which moves 59 mV/pH unit) is neg. of the E°' for II. I reduction occurs only when II-Pt(0) is reduced, establishing mediation through II and not direct reduction at Pt in the polymer.

CC **6-3** (General **Biochemistry**)

ST stellacyanin redn hydrogen viologen mediator; myoglobin redn hydrogen viologen mediator; cytochrome redn hydrogen viologen mediator; metalloprotein redn hydrogen viologen mediator

IT Glass, oxide
RL: BIOL (Biological study)
(heterogeneous platinum-viologen catalysts on, for reduction of metalloproteins)

IT Myoglobins
Stellacyanins
RL: RCT (Reactant); RACT (Reactant or reagent)
(reduction of, heterogeneous platinum viologen catalysts for)

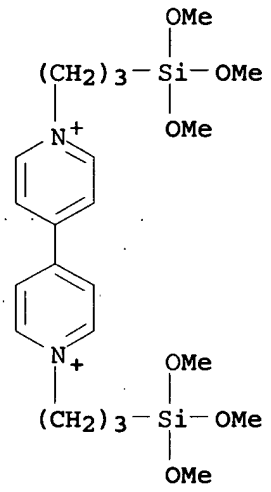
IT Reduction catalysts
(surface-confined platinum-viologen, for metalloproteins)

IT **74173-49-2**
RL: BIOL (Biological study)
(heterogeneous catalyst containing platinum and, for reduction of metalloproteins)

IT 13965-91-8 7440-06-4, uses and miscellaneous
RL: BIOL (Biological study)
(heterogeneous catalyst containing viologen and, for reduction of metalloproteins)

IT 1333-74-0, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)

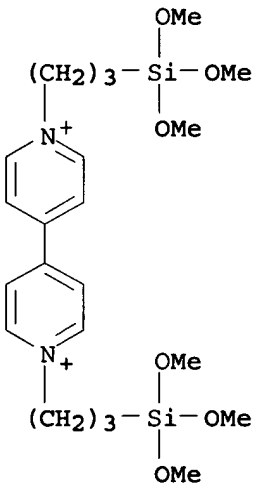
(metalloprotein reduction by, heterogeneous platinum-viologen catalyst for)
IT 9007-43-6, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reduction of, heterogeneous platinum viologen catalysts for)
IT **74173-49-2**
RL: BIOL (Biological study)
(heterogeneous catalyst containing platinum and, for reduction of metalloproteins)
RN 74173-49-2 HCAPLUS
CN 4,4'-Bipyridinium, 1,1'-bis[3-(trimethoxysilyl)propyl]-, dibromide (9CI) (CA INDEX NAME)



●2 $Br^-$

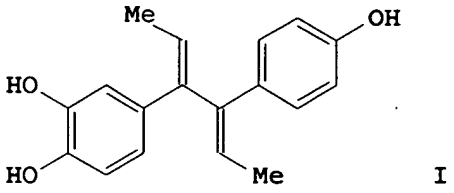
L51 ANSWER 28 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1981:152131 HCAPLUS
DN 94:152131
TI Electrochemical reduction of horse heart ferricytochrome c at chemically derivatized electrodes
AU Lewis, Nathan S.; Wrighton, Mark S.
CS Dep. Chem., Massachusetts Inst. Technol., Cambridge, MA, 02139, USA
SO Science (Washington, DC, United States) (1981), 211(4485), 944-7
CODEN: SCIEAS; ISSN: 0036-8075
DT Journal
LA English
AB Pt, **Au**, or p-type Si electrodes derivatized with [N,N'-bis[3(trimethoxysilyl)propyl]-4,4'-bipyridinium] dibromide can be used to reduce horse heart ferricytochrome c (I), whereas reduction does not occur at the naked electrodes. At 3-17.7 mM protein concentration, the reduction of I is mass transport-limited at electrode potentials more neg. than about -0.6 V against a saturated calomel reference electrode. Data for the photoredn. of I at derivatized p-type Si photocathodes show directly that the rate of reduction is mass transport-limited. The use of derivatized electrodes may allow convenient manipulation and anal. of biol. mols. that do not ordinarily respond at conventional electrodes.
CC **6-3** (General **Biochemistry**)

Section cross-reference(s): 9
ST cytochrome c redn derivatized electrode
IT Reduction, electrochemical
(of cytochrome c, electrode derivatization in relation to)
IT **74173-49-2**
RL: BIOL (Biological study)
(electrode derivatized with, cytochrome reduction at)
IT 9007-43-6, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reduction of, at derivatized electrode)
IT **74173-49-2**
RL: BIOL (Biological study)
(electrode derivatized with, cytochrome reduction at)
RN 74173-49-2 HCAPLUS
CN 4,4'-Bipyridinium, 1,1'-bis[3-(trimethoxysilyl)propyl]-, dibromide (9CI)
(CA INDEX NAME)



●2 $Br^-$

L51 ANSWER 29 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1979:414178 HCAPLUS
DN 91:14178
TI Metabolism of diethylstilbestrol: identification of a catechol derived from dienestrol
AU Weidenfeld, Josef; Carter, Priscilla; Reinhold, Vernon N.; Tanner, S. B., IV; Engel, Lewis L.
CS Lab. Hum. Reprod. Reproductive Biol., Harvard Med. Sch., Boston, MA, USA
SO Biomedical Mass Spectrometry (1978), 5(10), 587-90
CODEN: BMSYAL; ISSN: 0306-042X
DT Journal
LA English
GI




I

AB Enzymic oxidation of diethylstilbestrol (I) [56-53-1] by mushroom tyrosinase or rat liver microsomes in the presence of NADPH gave II [70359-61-4], as shown by further oxidation with periodate, condensation with o-phenylenediamine, and mass spectrometry of the resultant phenazine. II was also formed by oxidation of I with Fremy's salt.

CC 2-2 (Hormone Pharmacology)

ST diethylstilbestrol metab

IT Microsome
(diethylstilbestrol metabolism by)

IT 70359-61-4
RL: BIOL (Biological study)
(as diethylstilbestrol metabolite)

IT 9002-10-2
RL: BIOL (Biological study)
(diethylstilbestrol metabolism by)

IT **70359-60-3**
RL: PRP (Properties)
(mass spectrum of)

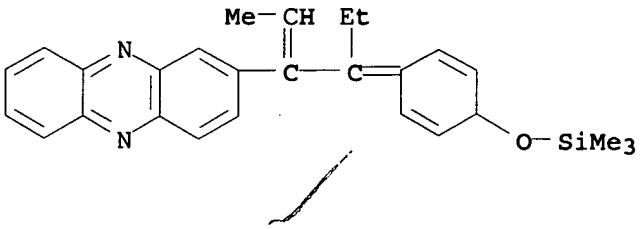
IT 56-53-1
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(metabolism of, by tyrosinase or microsomes)

IT 70359-57-8P 70359-58-9P 70359-59-0P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and mass spectrum of)

IT **70359-60-3**
RL: PRP (Properties)
(mass spectrum of)

RN 70359-60-3 HCAPLUS

CN Phenazine, 2-[1-ethylidene-2-[4-[(trimethylsilyl)oxy]-2,5-cyclohexadien-1-ylidene]butyl]- (9CI) (CA INDEX NAME)




L51 ANSWER 30 OF 30 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1973:428392 HCAPLUS

DN 79:28392

TI Surface active agents and quaternary organosilicium compounds as bactericides and fungicides

IN Abbott, Eugene Anthony; Isquith, Alan Jay

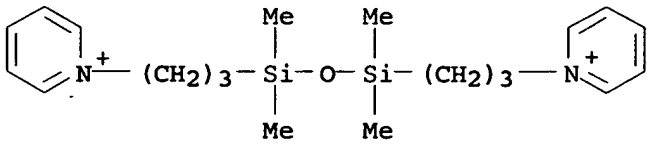
PA Dow Corning Corp.

SO Ger. Offen., 31 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | DE 2226823 | A1 | 19730412 | DE 1972-2226823 | 19720602 |
| | AU 7242318 | A1 | 19731122 | AU 1972-42318 | 19720516 |
| | GB 1386876 | A | 19750312 | GB 1972-22884 | 19720516 |
| | NL 7206937 | A | 19730406 | NL 1972-6937 | 19720523 |
| | FR 2156537 | A1 | 19730601 | FR 1972-22051 | 19720619 |
| | BE 785127 | A1 | 19721220 | BE 1972-118905 | 19720620 |
| | JP 48044181 | A2 | 19730625 | JP 1972-64869 | 19720628 |
| PRAI | US 1971-186541 | A | 19711004 | | |
| | US 1972-226289 | A | 19720214 | | |

AB Surfaces are rendered bacteriostatic and fungistatic by application of a quaternary ammonium organosilicon compound and a sulfonyl- or sulfate-type surfactant. The combination is notably active against tubercle bacilli and pseudomonads. The agents may be applied together or either after the other. The surfactants potentiate the action of the organosilicon compds. in many cases, in contrast to their inactivation of quaternary organic compds. Organosilicon compds. bearing 3 hydrolyzable groups may be bound to surfaces from a permanent antimicrobial siloxane film. For example, borosilicate glass treated with 1% aqueous dimethyl(octadecyl)[3-(trimethoxysilyl)propyl]ammonium chloride [27668-52-6], then contaminated with Streptococcus faecalis and incubated for 24 hr at 37.deg., and subsequently washed with 0.1% aqueous Na dodecylbenzenesulfonate [25155-30-0] and dried so to complete growth inhibition of the bacteria in Rodac plate tests. The growth inhibitory effect survived several washings with the surfactant.

IC A61L
CC **5-2** (Agrochemicals)
ST bacteriastatic organosilicon compds; fungistatic organosilicon compd; sulfonate surfactant disinfectant; quaternary ammonium disinfectant
IT Bactericides, Disinfectants and Antiseptics
Fungicides and Fungistats
(quaternary organosilicium compds.)
IT Siloxanes and Silicones, biological studies
RL: BIOL (Biological study)
(quaternary, bactericides and fungicides)
IT 122-19-0 15015-81-3 25155-30-0 27668-52-6 27668-53-7 27668-55-9
29394-88-5 41591-90-6 42608-55-9 42608-56-0 42608-57-1
42608-58-2 42608-60-6 42608-61-7 42608-62-8 42608-63-9
42608-64-0 42608-65-1 42608-66-2 42608-69-5 **42608-70-8**
42608-71-9 42608-72-0 42608-73-1 42608-74-2 42608-75-3
42608-76-4 42608-77-5 42608-78-6 42608-79-7 42608-80-0
42608-81-1 42608-82-2 42608-84-4 42608-85-5 42608-86-6
42608-87-7 42755-26-0 42755-27-1 42755-28-2 42755-29-3
42755-30-6 42755-31-7 42774-93-6 42774-94-7 42774-95-8
43166-50-3
RL: BIOL (Biological study)
(bactericides and fungicides)
IT **42608-70-8**
RL: BIOL (Biological study)
(bactericides and fungicides)
RN 42608-70-8 HCAPLUS
CN Pyridinium, 1,1'-[(1,1,3,3-tetramethyl-1,3-disiloxanediyl)di-3,1-propanediyl]bis-, dichloride (9CI) (CA INDEX NAME)



●2 $Cl^-$

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